THE NATIONAL Provisioner

THE MAGAZINE OF THE

Meat Packing and Allied Industries

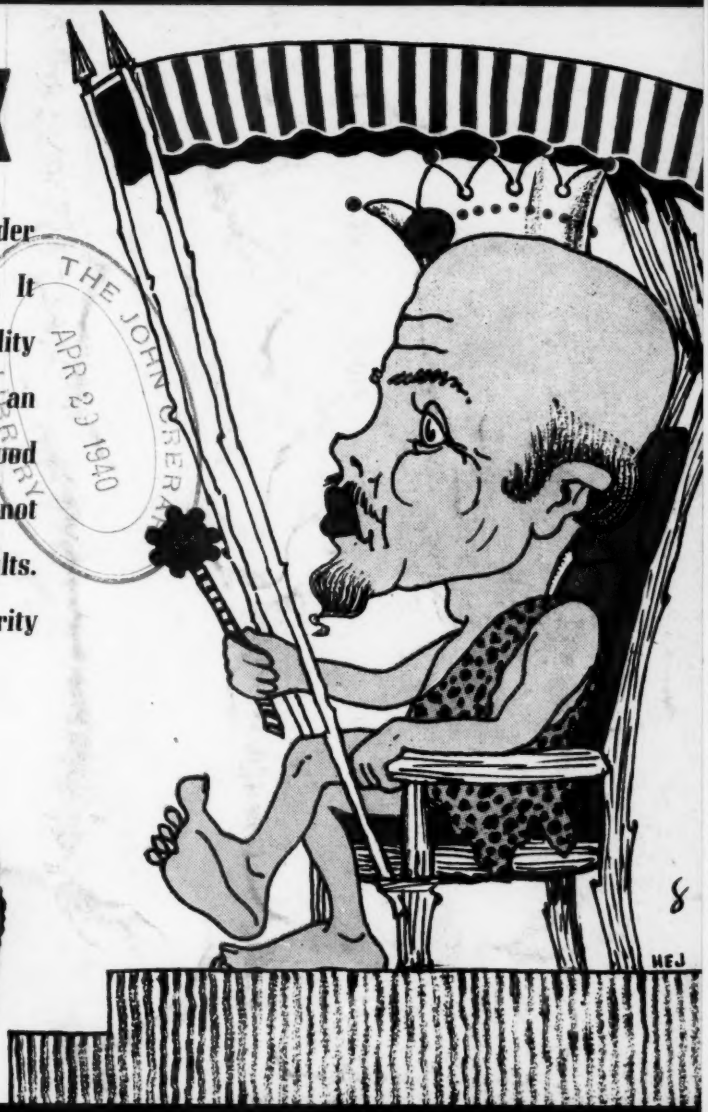
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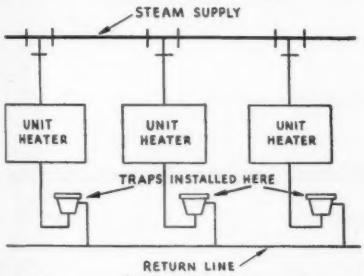


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THE NATIONAL PROVISIONER

The Magazine of the Meat Packing and Allied Industries

Official Organ Institute of American Meat Packers

Volume 102 **APRIL 27, 1940** **Number 17**

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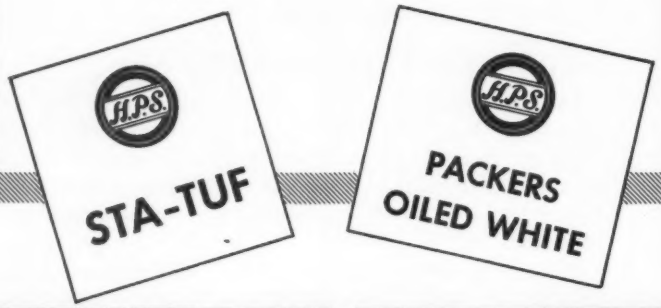
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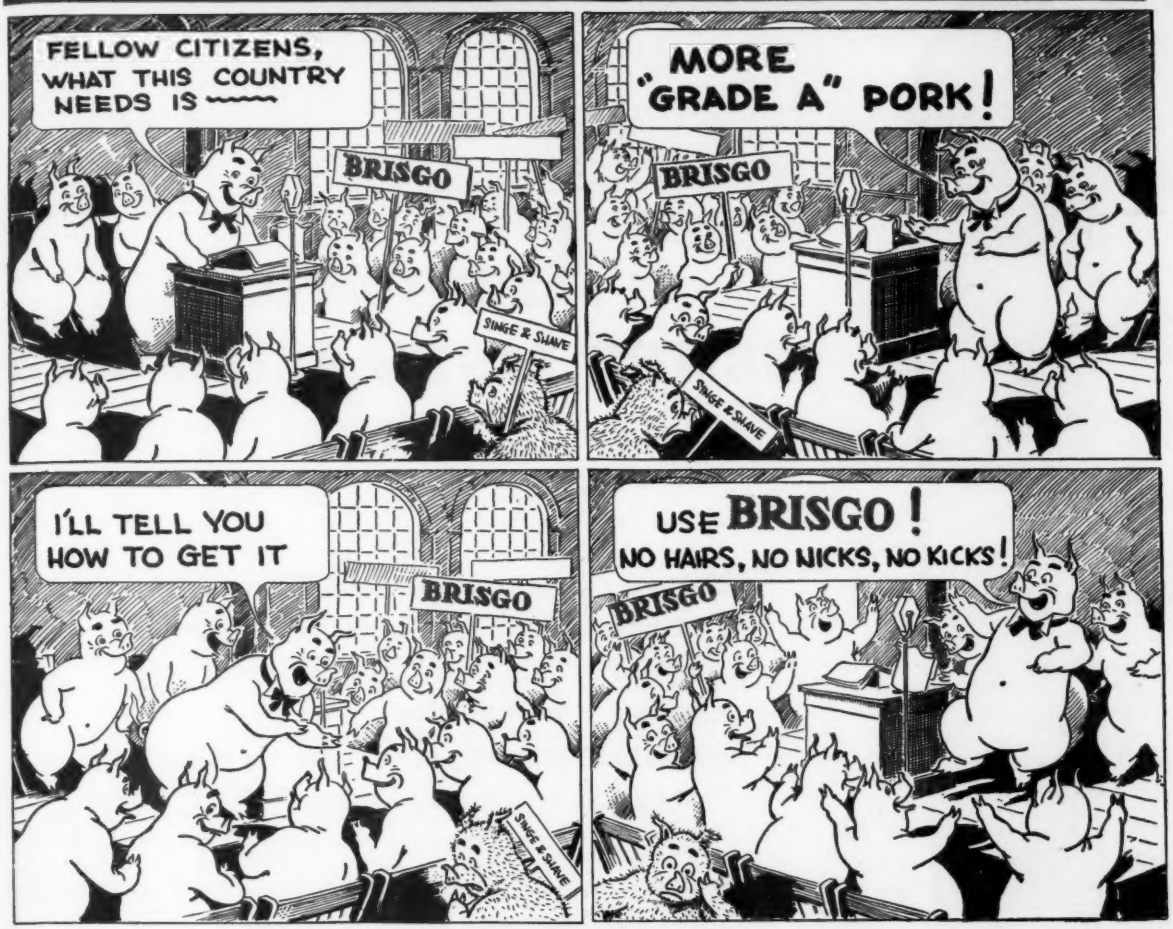
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Tendering of Beef

By ARTHUR W. EWELL

A paper presented by Arthur W. Ewell, consultant, Westinghouse Electric and Manufacturing Co., at the thirty-fifth annual meeting of the American Society of Refrigerating Engineers, Chicago, and reprinted from "Refrigerating Engineering."

BEEF during storage becomes more tender, more juicy, of greater delicacy of texture and often of superior flavor. The process of improving the quality of meat by prolonged storage has several designations—tendering, conditioning, aging, ripening and hanging. This paper will employ the first term, since the increase in tenderness is the most marked change and the only one susceptible of definite measurement.

The method of measuring tenderness usually employed in this country is a modification of the penetrometer (see Figure 1). A specimen is cut of such a size as to exactly fill a metal box about 4 in. square and 1 in. deep. A cover with five holes, each of about ⅜-in. diameter, fits tightly upon the top of the specimen. A brass vertical plunger, which has a semi-circular end slightly smaller than the holes in the cover and carries a weight at the top, is placed in one of the cover holes and the distance which it penetrates in a given time gives a measure of the tenderness.

Test Not Entirely Satisfactory

Tests are made at each of the holes in the cover and the average taken. The results are not entirely satisfactory because of the small area of meat subjected to test, the impossibility of distinguishing between toughness along and transverse to the muscle fibres, and the relatively small change in reading as tenderness progresses—the total increase in penetration being less than 50 per cent of the initial value.

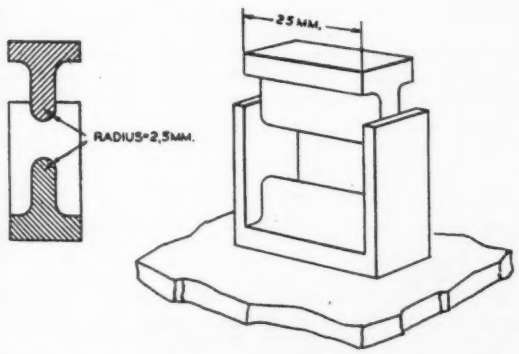


FIGURE 1.—Cutting surfaces of Volvdkevich penetrometer.

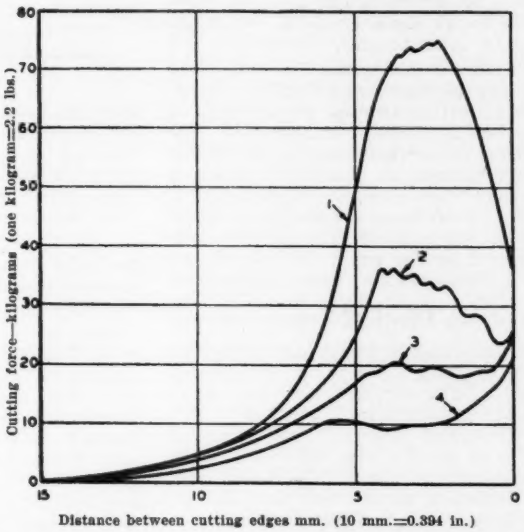


FIGURE 2.—14-year-old cow, cutting across muscle fibres. Curve 1, storage after slaughter, 48 hours at 32 degs. F.; Curve 2, at end of 48 hours more at 41 degs. F.; Curve 3, at end of 11 days at 41 degs. F., and Curve 4 shows the cutting force required at the end of 19 days at 41 degs. F.

Penetrometers with cutting edges simulating teeth have been tried out here and abroad. They have not been successful owing to irregularities due to portions of the meat lodging between the "teeth." The most satisfactory instrument developed to date is that of Volvdkevich. The cutting edges are shown in Figure 1.

The forces applied are large, often reaching a maximum of 150 lbs. The long cutting edge covering a considerable area of the meat specimen gives a good average value and the form of the cutting edge resembles teeth without the difficulty mentioned above. As an electric motor causes the edges to penetrate with a velocity of 0.25 mm. per second, the force is automatically recorded on a paper attached to a drum which rotates as the penetration proceeds and thus gives both the force at each point of penetration and, from the area, the work required.

It has been found that the maximum force, rather than the work, gives a more typical and consistent measure of toughness. The initial thickness of the specimen is always 15 mm. Zero on the horizontal scale of Figures 4 and 5 corresponds to complete penetration. Since meat is normally eaten cooked, and because cooked specimens gave more consistent values than raw, all samples were cooked

for 1 hr. in 0.5 per cent sodium chloride solution.

Figures 2 and 7 are taken from a paper by G. Steiner which presents the most accurate, extensive and recent study of tenderizing. Figure 2 illustrates how the toughness, as measured by either the force (maximum) or the work (area under the curve), decreases as the time of storage is increased from two to 19 days (ratio of maximum forces, seven to one).

Figure 3 illustrates how the maximum perpendicular cutting force (muscle fibres) is reduced 60 per cent by storage at a higher temperature. The second rise in toughness at the higher temperatures, as penetration proceeds beyond the maximum force, is attributed to connective tissue unaffected by the temperature. The force required parallel to the grain (connective tissues) is the same at both temperatures.

Studying Effect of Temperature

In studying the effect of temperature, cuts weighing about 10 lbs. were stored, one at a lower and the other at a higher temperature. From these cuts, specimens of ½ to 1 lb. and as nearly alike as possible were taken and, after cooking, were trimmed about a quarter of an inch to remove desiccated and infected surfaces, and then tested.

Irregularities in toughness in the first few days after slaughter are due to difference in the time of appearance and disappearance of rigor in different parts of the muscle. Throughout Steiner's work the influence of age and sex and the variation in different portions of the same muscle are evident. Ten diagrams and measurements of the maximum force were made for each length of storage. The range of these individual observations is shown by the vertical lines and the average by the circle.

Figures 4, 5, and 6 are for the coarse hind semi-tendinous and semimembranous muscles. A comparison of Figures 4 and 5 shows the greater toughness of the flesh of the older steer (six years vs. three years) and the slower tenderization. At the higher temperature (41 degs. F.) there is no sign of increase in toughness due to rigor mortis. Figure 6 shows the great influence of a high temperature (73 degs. F.) in speeding tenderization. Figure 7 portrays the lessened tenderization by storage if the meat is initially tender (tenderloin) and shows small advantage in raising the temperature.

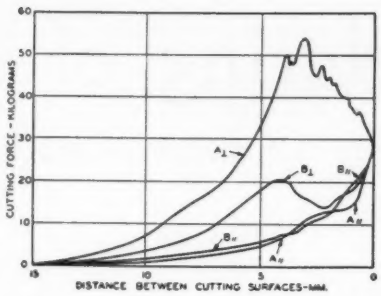


FIGURE 3.—12-year old cow: (A) One day storage at 41 degs. F.; (B) Storage following slaughter, six days at 41 degs. F., followed by five days at 32 degs. F. (⊥ signifies perpendicular to muscle fibre; ∥ signifies parallel to muscle fibre.)

Thus far we have considered the increase in tendering acquired during storage after slaughter, since this feature alone is capable of measurement. Everyone agrees that there is also an increase in juiciness, improvement in meat texture and often improvement in flavor. All four gains by storage are included under the general expression of improvement in palatability. A fifth factor must be added which always deteriorates during storage, namely color —which must be included in palatability since appearance may prejudice taste.

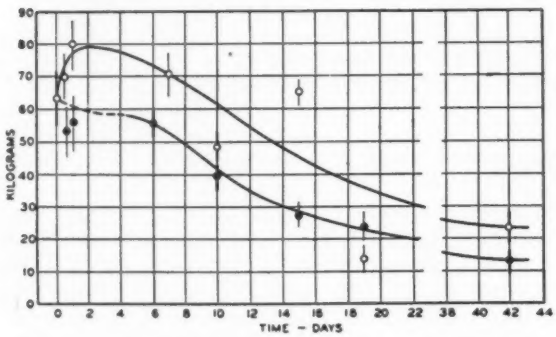


FIGURE 4. — Six-year old steer. o—storage at 32 degs. F. ●—storage at 50 degs. F. (Vertical lines indicate range of individual observations. Note absence of rigor at 50 degs.)

According to Hardy, "Palatability can be only partially covered by a chemical and physical consideration. There is a gap which can be filled in only by individual judgment and the judge in the last resort is the consumer." Figure 8 portrays the results of one of several series of tasting tests conducted in England. A total of 84 cuts, hot and cold, from the hind quarters of seven animals, two old cows and five prime steers, were appraised by six tasters.

The maximum marking was as follows: Tenderness 35; flavor of lean 20, of fat 15; texture 10, juiciness 10; color 10. The full lines apply to quarters stored at 41 degs., the dotted lines at 32- to 34-deg. storage. The figure shows a marked increase in tenderness and general palatability during the 17 days of storage. It also shows that the temperature difference has little effect.

These English observations confirmed that prolonged storage brings a reduction in the inevitable loss of weight during cooking. After three days storage the average loss of weight was 29.5 per cent, which fell to 23.9 per cent for similar beef after 16 days storage. Emmet and Grindley found that sirloin meat stored at 34 degs. gave a shrinkage of 25.1 per cent after six days' storage, and 21.8 per cent at the end of 43 days. See results by Müller below.

Losses in Tenderizing

There are inevitable losses during tenderizing by storage at ordinary temperatures (34 to 37 degs.) which requires from three to six weeks or even longer, for coarse meat. In addition to the interest upon the capital invested in the meat and the cost of refrigeration (averaging about 5 per cent), there is an inevitable loss of weight depending upon the duration of storage, dryness of the air in the storage room, area of the meat per pound of weight and the character of the meat surface.

With quarters this loss varies from 1½ to 7 per cent, and with short loins and ribs between 2 and 10 per cent. There is always serious impairment of surface color or bloom. Interior lean meat has a purple brown color which does not change materially during storage. A short time after cutting a fresh surface, however, the color changes to a bright red (between R-3-14 and R-4-8 Munsel) owing to oxidation of the haemoglobin to oxyhaemoglobin. During the storage required for tenderization further oxidation produces methaemoglobin, the color of which is an unpleasant brown (R-3-4 or darker).

On account of the poor color and especially because of injury from bacteria and mold to an appreciable depth from the surface, trimming is required, entailing a further loss of at least 5 per cent with short loins and ribs. At temperatures below 38 degs. F. this loss

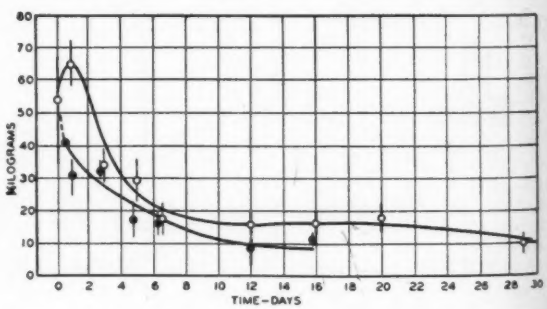


FIGURE 5—Three-year old steer. o—at 32 degs. F. ●—at 50 degs. F. (Note decrease in influence of temperature upon the time required for tendering as well as absence of rigor at 50 degs. F.)

may be materially reduced by the proper use of ozone if conditions permit.

A muscle consists of muscle fibres and connective tissue. The former are elongated sacs in delicate elastic sheaths, containing proteins, myosin and myogen in a colloidal state. The connective tissue consists mainly of collagen, which softens and swells up in the presence of dilute acid and which is converted into gelatine by boiling or heating with superheated steam, assisted by presence of dilute acid.

It has so frequently been suggested that tenderization is closely associated with resolution of rigor mortis that we should consider this suggestion in some detail. Meat is generally tender if cooked immediately after slaughter, before rigor has set in. Rigor is due to temporary coagulation—*i.e.*, lessened solubility of the muscle fibres and solidification of the fat.

There is some breakdown of carbohydrates with liberation of energy resulting about two hours after death in a rise of temperature of 2.3 degs. F., if the carcass is protected from loss of heat. The glycogen constituent of the muscle partly changes to lactic acid, increasing the latter from a concentration of .1 per cent at death to about 0.9 per cent at the end of 2 or 3 days.

Not Due to Lactic Acid

Since this increase in lactic acid accompanies the increased tenderization due to resolutions of rigor, it has been argued that tenderization is due to increase in lactic acid content. This theory is untenable because the lactic acid does not appreciably increase during the further tenderizing after the first few days following slaughter.

Is tenderizing due to a change in muscle fibres, or connective tissue, or both? A majority of the staff of the Low Temperature Research Station, Cambridge, England, have maintained that the primary change was in the connective tissue, the collagen becoming gelatine, similar to that which occurs in cooking. They have developed an elaborate method for measuring the degree of tenderization from observations of the amount of collagen changed to gelatine.

Investigators at the Refrigeration Institute at Karlsruhe, Germany, have, in general, come to the conclusion that the connective tissues changed but little, tenderizing being primarily due to changes in the muscle fibres, which became inelastic and tender.

Affects Less Tender Cuts

R. Heiss of this laboratory considers that the change of the collagen in the connective tissues to gelatine, and the swelling of the collagen in an acid environment, appreciably contribute to the tenderization and increase in palatability. He substantiates this view by pointing out the greater relative increase in tenderizing of coarse cuts with considerable connective tissue over that of initially more tender cuts with less connective tissue.

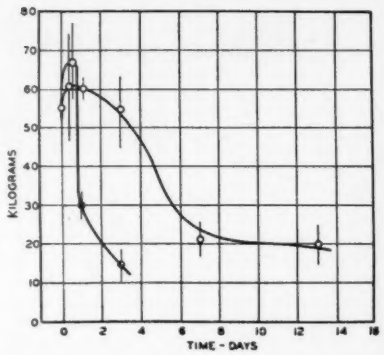


FIGURE 6.—Three-year old steer. Upper line—storage at 32.9 degs. F. Lower line—storage at 73.5 degs. F. (Note how high temperature speeds tendering.)

At Cambridge the staff working upon tenderizing does not consider that autolysis by intrinsic ferments plays an appreciable part in tenderization during the first 30 days of storage or longer. Hoagland, McBride and Powick also found no appreciable chemical change during the first 30 days of storage. Many chefs and retail butchers consider contamination by mold—"length of whiskers"—a good criterion of tenderness, but the American investigators, just quoted, found that the presence or absence of bacteria or mold had no influence upon the process of tenderizing.

Accepting the argument of Heiss that change in the connective tissue accounts for an important part of the tenderizing with storage, there is, however, very strong evidence that the major portion of the tenderizing occurs in the muscle fibers. Cutting transverse to muscle fibers, both muscle and connective tissue are encountered, but primarily the former. Parallel cutting is resisted largely by connective tissue. Figure 3 shows very strikingly that the reduction of the toughness of the connective tissue with length of storage is negligible compared with the great reduction of toughness of the muscle fibers met in transverse cutting.

Lest you may give too much weight to the foregoing discussion of the nature of the tenderizing which occurs during the storage of beef, I will conclude this portion of my paper with the following quotation from two leading investigators in their respective countries:

"The process by which the toughness of muscle after death decreases is not known. . . . It is possibly due to relatively insignificant change in the microcellular structure of the albumen. . . . After many weeks' storage, there is apparently a change in the collagen of the connective tissue . . . but in the period of greatest fall in toughness the connective tissue plays no part." (Steiner, translated.)

Dr. Moran, under whose charge the English tenderizing investigations at Cambridge were conducted, writes—"As regards to the tenderizing of meat we believe that the increase in tenderness can be explained by the change from collagen to gelatine, whereas Karlsruhe, relying on toughness machine tests, states that the collagen (connective tissue) is unchanged by hanging and that it is the muscle fibres which are softened. I am afraid we must leave it to further experiments to decide."

Temperature and Speed

In chemical, physical-chemical and biological processes the effect of temperature upon the speed of change is usually expressed in terms of the temperature coefficient for 10 degs. C. or 18 degs. F. defined by the equation—

$$Q_{10}=\frac{Vt+10-Vt}{Vt}$$

where V_t and V_{t+10} are the velocities of change at temperatures differing 10 degs. C. For lower temperature ranges, one may use the Plank formula:

$$ln\ Q_{10}=10\,\frac{d\ (ln V)}{dt}$$

Q_{10} is thus a measure, not of the speed but of the rate at which the speed varies with the temperature. Ordinary chemical reactions have usually a value of Q_{10} between 2 and 3. The rate of increase of both bacteria and mold upon meat surfaces corresponds to a value of Q_{10} between 4 and 5 in the range 32 to 41 degs. F. The observations of Steiner upon the increase in tenderizing by raising the temperatures from 32 degs. to 41 degs. give the unusually low value of about 2. for Q_{10}. The English observations indicate a similar value. Müller found that for the temperature range 32 to 68 degs. F. the juiciness of beef increased with an average value of Q_{10} of 1.7 as measured by the juice extracted under constant pressure.

In other words, the higher the tem-

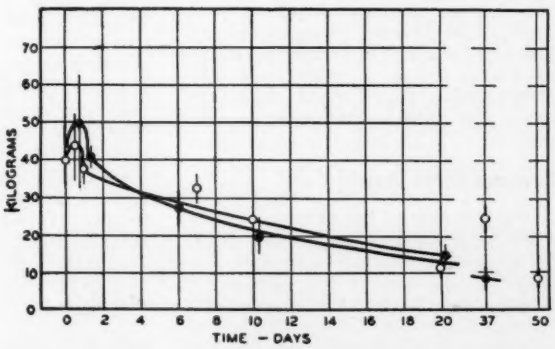


FIGURE 7.—Tenderloin muscle of six-year old steer. o—storage at 32 degs. F. ●—storage at 50 degs. F. (Note the reduction of tenderization and of temperature influence with initially tender muscle.)

perature the more juicy the meat, each 10 degs. C. or 18 degs. F. rise in temperature increasing the juiciness 170 per cent. Since, therefore, bacterial and mold infection (and rancidity of fat) increase much more rapidly than the speed of tenderizing, both recommend that tenderizing should be secured by storage at a low temperature (32 degs. Steiner, 36 to 38 degs. English). The English recommendation is closely approximated by the customary American practice.

In general, the temperature coefficient Q_{10} decreases as the temperature rises, reaching zero at the temperature corresponding to maximum velocity of change. This is true of bacteria and mold growth as far as can be ascertained from available data. There is, however, what the writer considers conclusive evidence that observations below 41 degs. F. give a false picture of the speed of tenderizing at higher temperatures, since Q_{10} for tenderizing does not decrease but very greatly increases at higher temperatures.

Effect of High Temperatures

During the past six years the writer has been connected with three investigations having the purpose of speeding up the rate of tenderizing by raising the temperature of storage. Observations in 1933 extended over a period of several months and involved storage temperatures between 50 and 60 degs. F. The other two were extended to lower temperatures.

The writer's observations indicate that Q_{10} is at least three times as great between 41 degs. F. and 50 degs. F. as Steiner's value of 2, and has a value of about 12 between 50 degs. F. and 60 degs. F. The average value of Q_{10} between 32 degs. F. and 60 degs. F. appears to be about 7. A comparison of the maximum slopes of the two curves of Figure 6 shows an average value somewhat higher, as would be expected from the higher temperature (73.4 degs.).

Process More Rapid

The accuracy of the observations and calculations of Q_{10} based thereon is not high, but they prove conclusively that not only does the speed of ripening increase as the temperature is raised from 32 to 60 degs., but that the rate of increase of the speed rises also so that the time required for a given degree of tenderization is very greatly reduced. Approximately, the same tenderization was obtained at 60 degs. in from one to three days, depending upon the size of the meat specimen, as was secured in three weeks or longer at 34 to 37 degs.

While the growth of bacteria and mold does not show a similar increase in the rate of increase of growth, the high value of Q_{10} results in a great increase at high temperatures. Not only was the surface very badly spoiled during the few days required for high temperature tenderization, but the infection penetrated an appreciable distance below the surface and often spread extensively between outside fat and the lean meat beneath, so that the meat was unsalable without very deep trimming.

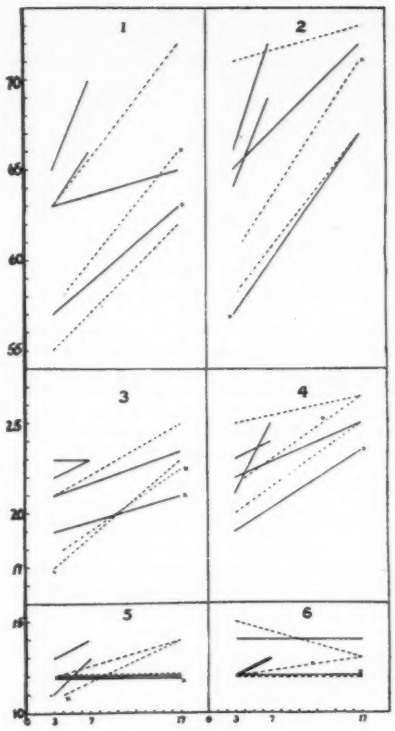


FIGURE 8

Effects of conditioning on:

1.—Palatability of quarter as a whole (hot).
2.—Palatability of quarter as a whole (cold).
3.—Tenderness of quarter as a whole (hot).
4.—Tenderness of quarter as a whole (cold).
5.—Flavor of quarter as a whole (hot).
6.—Flavor of quarter as a whole (cold).

At high temperatures the surface color or bloom is lost very quickly unless a very high humidity is present, and high humidity greatly accelerates the growth of infection which, in turn, adds to impairment of color. High temperature tenderizing is, therefore, impracticable without some method of controlling bacteria and mold.

Experiments with Ozone

In the work of six years ago attempt was made to control the bacteria and mold by the use of ozone. At these high temperatures it proved of very little value, even at concentrations so high that it appreciably increased the rancidity of the fat. At the end of 3 days the number of bacteria per sq. cm. of lean beef reached 53 hundred million, or over 100 times the upper limit for salability.

Carbon dioxide at a concentration of 10 per cent (the maximum concentration used in meat storage practice) at 32 degs. F. approximately doubles the length of storage before infection is serious. At higher temperatures, however, the efficiency of carbon dioxide rapidly decreases. The generation time of achromobacter, the most common bacterial infection of meat, is increased about 240 per cent over the value in air at 32 degs. and only 13 per cent at 39.2 degs. In other words—the growth which is slowed down by carbon dioxide 240 per cent at 32 degs. is only checked 13 per cent at 39.2 degs. The results are still less favorable with mold.

For many years investigators of beef tenderization have believed that the process could be accelerated by raising the temperature, assuming that the speed of tenderization would increase at the normal rate for such processes or double for each 18 degs. F. rise in temperature. A few years ago, as stated above, it was found experimentally (but not published) that the rate increased much more rapidly.

Growth of bacteria and mold, however, made it impossible to utilize the quicker tenderization at high temperatures, the only available germicidal agents—ozone and carbon dioxide—proving unsuccessful. Some success was attained by the addition of various foreign materials—such as in the "Bullot Process"—all of which were soon forbidden by governmental regulations except under unusual conditions in the tropics.

WAGE-HOUR BILL'S PROGRESS

Three proposals to amend the wage and hour law, including the Barden bill (HR 7133), are scheduled for early debate in the U. S. House of Representatives. The Barden bill is of considerable interest to packers because it contains a provision making it plain that the meat packing industry's exemption is intended to cover all employes at a packing plant which conducts slaughtering operations, and not just those engaged in slaughtering, bleeding, removing head, hide, hair, entrails and dirt, and operations performed upon warm fancy meats.

The above restricted interpretation is that of the Administrator of the Wage and Hour Division, U. S. Department of Labor.

The Barden bill provision applicable to the meat packing industry is as follows:

"In the case of an employer engaged in the grading, loading, slaughtering, or dressing of livestock, or preparing products therefrom at the packing plant, or in handling or transportation in connection with or incidental to such operations . . ., the provisions of subsection (a), during a period or periods of not more than sixteen workweeks in the aggregate in any calendar year, shall not apply to his employes in any place of employment where he is so engaged."

It is unlikely that the Senate will pass the measure during this session, however, even though it should be approved by the House.

Liver Sausage Drive Gets Off to a Flying Start

THE opening drive of the advertising and promotional campaign featuring liver sausage, sponsored by the Institute of American Meat Packers, got under way when *Life* magazine appeared with the first full-color liver sausage advertisement—an arresting double page spread. At the same time, thousands of retail grocery and meat dealers throughout the United States exhibited the first lot of store advertising material.

It is estimated that 20 million readers will see the two-page advertisement on liver sausage, and that additional millions will view a full-color poster and other advertising material being displayed in retail food stores. Other advertising material offered by packers and sausage manufacturers cooperating in the campaign and newspaper and handbill advertising by chain stores, independent dealers and additional organizations will enlarge the audience to an even greater extent.

It is estimated that virtually every meat consumer in every local trade area throughout the country will come in contact with the wealth of advertising material featuring appetizing and delicious cooked hot liver sausage dishes.

Campaign Extends through May

The Institute points out that the campaign should gather momentum as the promotion carries into May. The campaign is scheduled throughout the entire month of May, a season when consumers are especially interested in new dishes and new menu ideas. The second period gets under way when the second advertisement featuring liver sausage appears in the May 20 issue of *Life* magazine. Supplementary store advertising material will also be issued to tie in with the second advertisement.

In addition to efforts of meat packers, sausage manufacturers and retail meat dealers, other organizations also plan to tie in with the program. Thousands of recipe leaflets and stickers have been sent to more than 40 of the nation's leading railroads. The latter have indicated their interest in the unusual appetite appeal of hot liver sausage dishes and have been featuring them on dining car menus. Restaurants and hotels also are testing the recipes and have announced that these dishes will be featured prominently throughout the period of the campaign.

Reports from the Institute's local chairmen indicate enthusiastic reception of the campaign in local trade areas. Approximately 500 of these chairmen have been organizing the campaign locally, distributing advertising material and urging meat packers, sausage manufacturers, dealers, hotels, restaurants, and others to advertise liver sausage and feature hot liver sausage dishes. Hundreds of mats and electrotypes have been distributed to retail meat dealers, local campaign chairmen and others. This material is designed for use in handbill and newspaper advertising in local trade areas.

A few typical comments from local chairmen follow:

OLEAN, N. Y.—"We have noticed already quite an improvement in our sales on this item (liver sausage) and feel that we will double our last year's tonnage on all liver sausage before the campaign is over."

POUGHKEEPSIE, N. Y.—"We have all the advertising material in connection with the campaign distributed as per schedule. Everyone is enthusiastic about the entire affair."

OKLAHOMA CITY, OKLA.—"While Oklahoma did very well on the first half of the campaign, I think that the result on the second half, featuring liver sausage, will be much better. . . . I am certain we can depend on everybody to give the necessary time and attention to put the campaign over."

TRENTON, N. J.—"We believe the response to our efforts in creating enthusiasm on the pork sausage link campaign is going to follow through and produce good results on the liver sausage drive."

Although it is too early to obtain full reports from local chairmen on interest in the campaign, the Institute points out that information received thus far indicates that local chairmen are making arrangements for talks before women's clubs, service clubs, and other local groups. As in the pork sausage links program, announcements also will be made over local radio stations.

SEEK NEW FRANKFURT NAME

In an effort to find an appropriate name for its skinless frankfurt, Zion Kosher Meat Products, New York City, is conducting a contest involving $500 in cash and credit prizes for the best suggestions submitted.

One of the rules of the competition requires that each suggestion must be accompanied by a casing from one of the frankfurts. To make it possible for consumers dining in restaurants and cafeterias to participate, the company is encouraging proprietors to save the casings for patrons who may wish to submit names.



CONTEST POSTER

Judges of the contest are some of the principal food editors of the New York, Brooklyn and Bronx press and others affiliated with some of the national syndicates. Judges were the guests of the Zion company at a recent luncheon featuring skinless frankfurts served in a number of ways.

Max Anderson is president of the company and Lee Tarlow, treasurer.

BONELESS LAMB ROLL POPULAR

Swift & Company reports a flood of repeat orders from plants and branch houses for its new boneless lamb roll. The roll, containing no bones, is said to be easily prepared and carved. One firm, tender piece of meat fills the inside of the roll. Eye appeal of the new item is an important sales-building factor.



PRAGUE POWDER

Registered U. S. Patent Nos. 2054623, 2054624, 2054625, 2054626



Choose carefully your curing material

A mechanical mixture of *raw salt, raw nitrate* and *raw nitrite* is still a *raw mixture*. It is not prepared to do good work. Raw materials have to lay in the meat until they are changed to a "cure."

We tell you PRAGUE POWDER is all ready to do your curing. It is ready at once on application—no waiting—It is reasonable to say you should use Prague Powder—it's better for you.

PRAGUE POWDER is made from a strong ham pickle, boiled, settled, and forced (as wet pickle) through a rapid drying process on fusion rolls. A drop of this cured pickle comes off the fusion rolls as a splash of dry powder—PRAGUE POWDER—it's better.

When you cure hams with PRAGUE POWDER you will notice the difference. PRAGUE POWDER makes a *mild, mellow curing agent.*

PRAGUE POWDER, as you see, is a pre-prepared substance and creates in the hams a delicate, sweet, tasty flavor. The original curing ingredients have been reduced and changed into a soft, powdery mass as "dry pickle" or powder.

Your ham is made tender by artery pumping and the use of pre-prepared PRAGUE POWDER Pickle. All artery pumped hams can be finished in "dry cure" like "Sugar Cured Bacon" giving a "Rich, Ripe Flavor."

It is our intention to say Prague Powder Pickle is more quickly absorbed than ordinary pickle in the Arteries.

It is our intention to say deep penetration takes place at once and color fixation follows immediately when Prague Powder Pickle is absorbed.

The Originators of
"SAFE, FAST CURE"
READY TO EAT HAMS
TENDER CORNED BEEF

Our Salesmen Are on the Job

We teach up-to-date, practical methods of curing hams, bacon, loaves and sausage meats. The art is old, but the methods are new. *Learn to listen.* We believe in Artery Pumping.

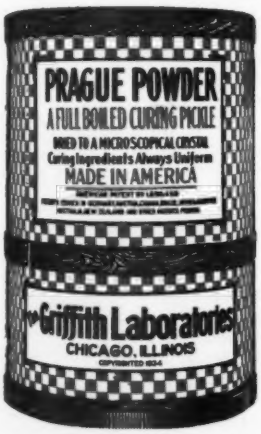
Artery Pumping is now a universal practice by all up-to-date packers

To cure a ham the short time way it is necessary for the ham to absorb 8–10% pickle solids. Artery pumping adds no more moisture than the old methods and saves 90% of the time and cellar space. In all cases the added pickle is all lost in the smokehouse process.

Prague Powder Makes a Tender Ham



A PRAGUE POWDER cured Tender Smoked Ham is ready for slicing, broiling or baking; it's Mild, Sweet and Tender. There is no other cure like PRAGUE POWDER.



Prague Powder Makes Bacon Tender

PRAGUE POWDER pickle is ripe; it is developed one step further than fresh pickle. Its absorption creates immediate action as a color fixative and as a cure. PRAGUE POWDER pickle is a perfect pumping pickle. It is absorbed more quickly in the muscles and joints than any other pickle and makes the "short time cure" in 3 to 7 days. It is ripe. It is scientifically developed.

"An Approved, Safe, Fast Cure"

IT'S A DRY PICKLE

THE GRIFFITH LABORATORIES

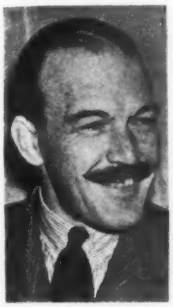
1415-31 West 37th Street, Chicago, Illinois

Eastern Factory and Office: 35 Eighth St., Passaic, N. J.
Canadian Factory and Offices: 1 Industrial St., Leaside, Toronto 12, Ontario



Modern Rendering Done in Irish Plants

ONE of the most modern rendering plants in northern Ireland, located at Lisburn, is that of Newforge, Ltd., operated under the direction of



R. C. WILSON

R. Clement Wilson. It was originally built to handle surplus from the company's plant at nearby Malone, in addition to dead stock, but its high operating efficiency led to the recent transfer of all material to the Lisburn plant.

Before selecting equipment for this plant, Mr. Wilson investigated rendering and packing plants in Europe and the United States in quest of the most desirable process. As the result of his efforts, two Duo Expellers, produced by the V. D. Anderson Co., Cleveland, O., were selected.

Other equipment included three 6-by 16-ft. fat melters and a hog to crush all material before cooking. In operation, carcasses are skinned and crushed, offal hashed and washed in one building, then removed to melters and expellers in another unit. A feature of the Lisburn plant is a rendering control board 10 ft. high and 30 ft. long, devised by Mr. Wilson, showing temperature of material, jacket pressure, internal pressure and vacuum which permits a constant determination of the progress of the melter load.



Top: Exterior view of Newforge, Limited's modern rendering plant at Lisburn, Ireland. Center: Interior of the extraction building at Lisburn. Bottom: Exterior of the Newforge plant at Malone, Ireland.

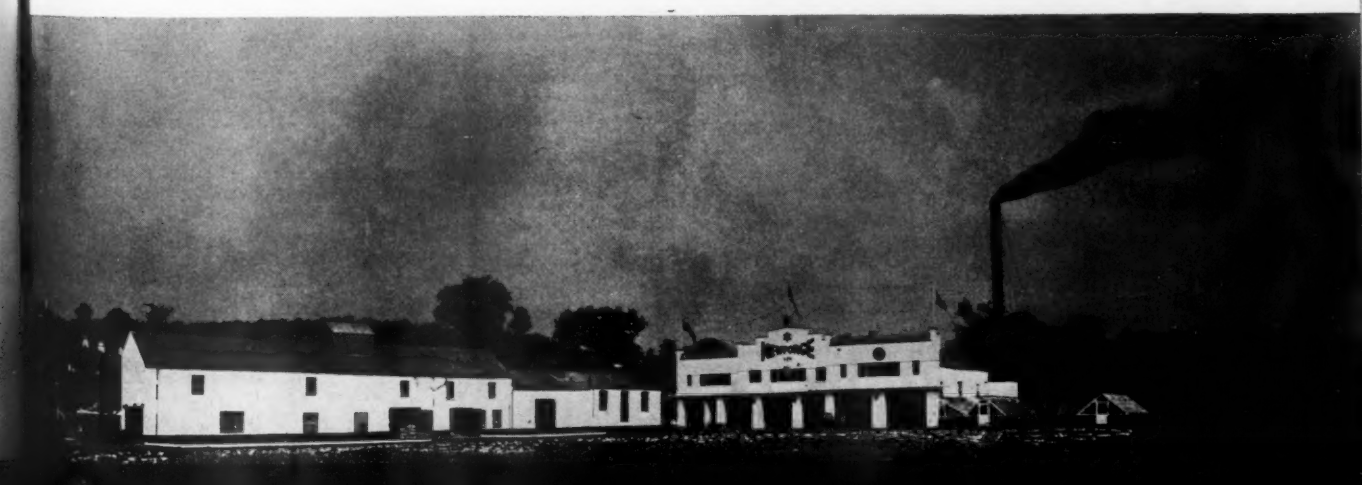


A. C. WILSON

Based on two years of operation, the expeller plant, according to Mr. Wilson, showed a net saving of $6.25 per long ton of pressed material over the company's Malone plant. It also produced a better grease, he said, both in color and acid, and a "far more marketable" scrap for his feeding business. These factors led to transfer of all material to the new plant.

The Newforge plants present a pleasing appearance to visitors. Buildings are white with green trimmed windows and red roofs, and are flanked by flower gardens. Rendering odors are killed by chlorination. Mr. Wilson's brother, A. C. Wilson, is managing director of the R. Wilson & Sons' plant at Manchester, England.

The Wilson family, now in the meat business more than 100 years, have two plants in Scotland managed by R. Wilson, father of the two men above.





TOVREA BUILDS ALL-ARIZONA ZOO AT PHOENIX



AN "ALL ARIZONA" zoo, designed to house wild life native to the Southwestern section of the United States and dedicated as a memorial to the late Ed A. Tovrea, founder of the Tovrea Packing Co., has been started by P. E. Tovrea, prominent rancher and present head of the Phoenix, Ariz., meat packing company. Opening of the project late last month attracted an unexpectedly large attendance.

The zoo at present contains relatively few animals, but under Mr. Tovrea's plan additional species will be added from time to time as they are obtained and quarters are prepared for them. The completed project will occupy 16 acres in the Valley of the Sun near Phoenix, where ideal weather conditions prevail throughout the year. Half the space will be allotted to herbivorous animals and the remainder to carnivorous varieties. Native bird life is expected to be acquired later.

Tracts have been fenced and water supply facilities provided. Pens are to be constructed upon receipt of detailed plans from the National Zoo at Washington, D. C. Several herbivorous animals, including species of buffalo, deer, antelope and Texas Longhorn steers, have been acquired. The latter, though not native to Arizona, are a fast-disappearing type of cattle first raised in that part of the country and bound up with the early history of the Arizona livestock industry.

SECTION OF TOVREA ZOO

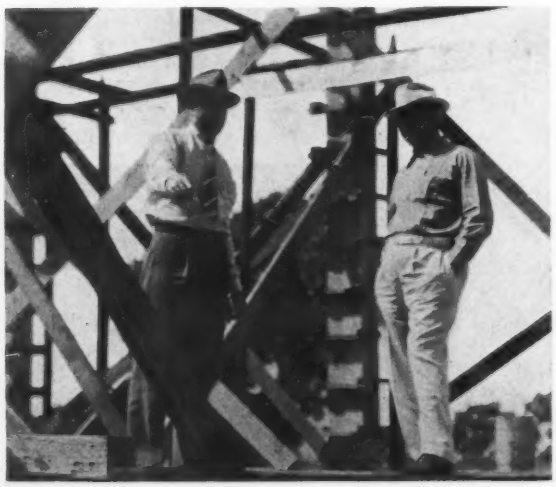
American bison are quartered in this section of the Tovrea "all-Arizona" zoo, which is being established as memorial to the late Ed A. Tovrea. Pueblo Grande ruins, in background, are one of the largest prehistoric ruins in the United States.

UPPER LEFT.—Monarch of the animals now exhibited at the Tovrea zoo is this rare Pinto buffalo bull, weighing more than 2,000 lbs. He is housed in a feeding pen until more suitable quarters can be prepared for him. Because of his absolute conformation to the species, most authorities consider his Pinto coloring a freak.

Wildest of the animals now on exhibit is said to be a Pinto bull buffalo weighing more than 2,000 lbs. Until special accommodations are constructed for this prairie monarch, he will be housed in one of the Tovrea feeding pens. Three other buffalo of milder disposition are roaming in the zoo section reserved for them.

Among the animals being sought are a pair of Arizona's almost extinct Rocky Mountain sheep, once numerous in that part of the country; javelinas, or small, vicious wild hogs found near Superstition mountain, and the spotted tiger, which resembles an overgrown mountain lion except for its leopard-like spots. Other rare Arizona species have been offered to the zoo by interested residents of the state who have trapped them from time to time for pets or trophies.

Mr. Tovrea intends to expand the project gradually as conditions permit, and as experience and advice indicate best methods for housing and feeding the animals. The zoo, open to the public without charge, promises to become one of the Southwest's favorite educational and tourist attractions. School children will visit it on field trips to study the native wild life of their state, while tourists wintering in the Valley of the Sun will find the zoo a unique point of interest.



DISCUSSING NEW VENTURE

P. E. Tovrea (right), president, Tovrea Packing Co., talks over some of the features of the zoo with E. V. Graham, advertising manager. The 16-acre project is to house wild life native to the Southwest, and will be expanded gradually as new specimens are obtained. Weather conditions at the zoo site are ideal for the animals throughout the year.

WAGNER ACT AMENDMENTS

Both the Smith and Norton bills to amend the National Labor Relations Act will come before the House of Representatives for a vote during the next two weeks. The House rules committee has adopted a resolution sending out both bills and, as a result, the House will have full opportunity to choose between the administration-favored Norton proposal and the more drastic Smith bill.

The Smith bill would abolish the labor board in favor of a new three-man body exercising only judicial authority. Administrative duties of the board would be vested in an independent administrator with limited power.

U. K. PURCHASES IN BRAZIL

The British government has purchased approximately $12,000,000 worth of meat in Brazil since the outbreak of the war in Europe, the U. S. Department of Commerce reports. This includes about 22,000 tons of corned beef in 12-ounce tins, 80,000 tons of beef, 20,000 tons of miscellaneous meat products and 2,500 tons of frozen hogs.

PROCESSING *Methods*

MoreRennetsNeeded As War Cuts Supply

AS A result of the war, specialists of the U. S. Bureau of Animal Industry believe that the United States is unlikely to receive calf rennets from some European countries in the same volume as formerly. The rennet, as the term is used commercially, is the fourth stomach of the calf from which extract of rennet, or rennin, is prepared. Since this product is used generally in the manufacture of cheese, officials of the bureau suggest that firms slaughtering young calves may add to their returns by saving calf stomachs, thereby also helping to insure an adequate supply of rennin for the cheese making industry.

Normally, calf rennets are imported from Denmark, Poland, Italy, Germany, and other European countries. However, the bureau has received reports of curtailed importations of rennets from several European countries, some of which now prohibit exportation.

GRADES. — Rennets from calves which have been fed chiefly on milk are most valuable for preparing rennet extract. First grade rennets are produced only from calves which have been fed chiefly on milk and must be properly salted and trimmed. The finest rennets contain nothing but milk curd at the time of slaughtering.

Number 2 rennets are produced from calves which have been fed on both milk and mixed feed. A shipment of milk fed rennets to which a number of grass fed rennets have been added might also grade Number 2.

Prices normally range from about 4 to 8 cents each, the price depending on the age of the calf and the manner in which it has been fed, as well as on the supply and demand for rennets. Rennets are prepared in two ways—salted green and blown-dried.

SALTING.—Rennets are usually and preferably prepared by salting. The rennet is separated from the pounch and the small end cut off (small parts of the third stomach and small intestine are usually left attached). All curdled milk or other food is expelled through the small end, but it should not be squeezed too hard. All fat is trimmed off and the outside of the stomach is rinsed with a little water. Inside of the rennet should never be washed.

The rennet should be salted as soon as possible after the calf has been killed. Delay in handling may result in loss of strength and spoilage; when such rennets are salted they may turn pink and have a strong odor.

Slit the stomach the entire length so it will lie flat. If not already properly trimmed, cut off the thick, fatty portion at the lower end and carefully trim off the thick book at the large end. Do not cut out any of the large upper end of the rennet proper as it is the most valuable part.

Stretch the rennets flat and pile them between heavy layers of table salt—not coarse or rock salt and allow the pile to lie for a few days on a bench or table to drain. There should still be plenty of salt left between the pieces after the liquid has drained away. If extra salt is not used the rennets will lose strength and will not grade Number 1.

The loose salt is shaken off and the rennets are stretched out flat in a tierce or box for shipment. Salted rennets should be stored in a dark cool place. If they are to be held for more than a month they should be dried by stretching on the points of two nails on racks. Rennets must always be dried at temperatures below 100 degs. F.

DRYING.—In making blown-dried rennets, tie up the opening in the large end, at the narrow passage between the book and the rennet proper. The rennet is blown up as hard as possible through the small end; the small end is then tied.

Hang the rennets in a room held uniformly at 80 to 90 degs. F. If the heat is not regulated, the small end of the rennet may not dry fast enough, and may rot or mold, possibly spoiling the whole piece. Rennets must be protected from flies while being dried.

A casing drying room may be used in preparing dried rennets but must not be held at as high a temperature as is normally in use there. Rennets lose their ferment strength if fat runs from them.

Rennets are tied with string to loose sticks 6 ft. long (eight rennets to a stick). They should be hung so that they do not touch each other. The sticks are then placed on racks. When rennets are dry, the long narrow end is cut off to let out the air (this end contains little ferment). The knob formed when the rennet was tied at the other end is cut off close to the string to preserve all the valuable large end.

Rennets are tied flat, in bundles of 25 or 50, and will make a better bundle if two are packed one way, the next two the opposite way, etc. Pack in cases or barrels for shipment. Protect rennets from insects, hold in a cool dry place and ship promptly.

SHIPPING.—Calf rennets, prepared as described, are not classed as an edible product under federal meat inspection regulations and may be transported in interstate commerce without a shipper's certificate, provided the containers are marked with the word "Inedible" in letters at least two inches high in addition to the name "Calf Rennets." This procedure differs from that applying to shipments of meat which, under federal meat inspection requirements, must be accompanied by a shipper's certificate.

Persons interested in preparing rennets should communicate, for further information, with firms engaged in making rennet extract.

MOCK CHICKEN LOAF

An Eastern processor asks for a formula and directions for making mock chicken loaf. He writes:

Editor THE NATIONAL PROVISIONER:

We should like to make a good mock chicken loaf and put it up in 6-lb. cans. Do you have a formula and processing directions for making such a product?

Mock chicken loaf may be made with the following formula. Meat ingredients are:

367½ lbs. hog stomachs
165 lbs. fresh veal
90 lbs. fresh hog skins
135 lbs. fresh pork snouts

Hog stomachs are cooked for 2¼ hours at 210 degs. F. and are ground through 7/16-in. plate. Veal is cooked for 1 hour at 200 degs. F. and ground through ¼-in. plate. Hog skins are cooked for 1¾ hours at 210 degs. F. and ground through 5/64-in. plate. Fresh pork snouts are cooked for 1½ hours at 210 degs. F. and ground through 3/16-in. plate. Add 3 oz. sodium nitrate and ½ oz. nitrite of soda to snouts and veal while cooking.

Veal, snouts and skins are mixed together thoroughly for 1½ to 2 minutes, with the stomachs and the following ingredients in 9¾ gallons of broth from cooking veal and snouts:

15 lbs. 1½ oz. salt
5 lbs. 4 oz. prepared chicken loaf seasoning (monosodium glutenate)
2 lbs. 11 oz. dry milk solids
30 lbs. wheat flour
14 oz. white pepper
2½ oz. finely ground sage
1 oz. marjoram
1 oz. savory
1½ oz. thyme
3 lbs. 15 oz. gelatine

Mix all ingredients thoroughly. Stuff in 6-lb. cans. Process at 210 degs. F. for 4 hours and 50 minutes. All meat ingredients should be mixed while hot.

Do you use this page to get your questions answered?

Up and down the MEAT TRAIL

Eastern Meat Packers Stage Annual Dinner

The annual dinner of the Eastern Meat Packers' Association, held on April 19 at the Pennsylvania hotel, New York, was one of the most successful affairs ever held. Among those attending:

Albany Packing Co., Albany, N. Y.—**J. C. Meyer, M. I. Sullivan** and **W. C. Codling**; Louis Burk, Inc., Philadelphia, Pa.—**B. C. Dickinson**; Chester Packing & Provision Co., Chester, Pa.—**W. L. Medford**; Danahy Packing Co., Buffalo, N. Y.—**A. T. Danahy**; C. A. Durr Packing Co., Inc., Utica, N. Y.—**W. E. Oliver**; John J. Felin & Co., Philadelphia—**G. A. Casey, J. E. Murphy** and **J. J. Maguire**; Figge & Hutwelker, Inc., New York—**A. B. Chatterton**; Fried & Reineman Packing Co., Pittsburgh, Pa.—**Walter Reineman** and **T. T. Welden**; Adolf Gobel, Inc., Brooklyn, N. Y.—**A. E. Nelson, F. T. Spamer, R. A. Nelson** and **D. E. Nelson**;

Albert F. Goetze, Inc., Baltimore, Md.—**Albert Goetze** and **M. Johnson**; Hofmann Packing Co., Syracuse, N. Y.—**A. C. Hofmann**; George Kern & Son, Inc., New York City—**Geo. W. Kern** and **Fred H. Bucholz**; Kollner's Inc., Jamaica, N. Y.—**George Scherman, Otto Hahn** and **Jack Gutfreunds**; Chris. Kunzler Co., Lancaster, Pa.—**G. W. Birrell**; Merkel, Inc.; Jamaica, N. Y.—**Henry Merkel, A. H. Merkel, F. Howard Firor, Phillip Houston, A. G. Mauer** and **H. A. Lauer**;

Henry Muhs Co., Passaic, N. J.—**Herbert Rumsey, jr.**; W. F. Myers Son, Westminster, Md.—**Oliver Myers**; Rochester Packing Co., Rochester, N. Y.—**Fred M. Tobin**; Scala Packing Co., Utica, N. Y. — **J. S. Scala**; Wm. Schluderberg-T. J. Kurdle Co., Baltimore, Md.—**W. F. Schluderberg, W. E. Hunt** and **B. P. Lauder**; Stahl-Meyer, Inc., New York—**George A. Schmidt, Louis Meyer, Otto Weber, G. A. Schmidt, jr.,** and **Waldemar J. Neumann**; Trunz Pork Stores, Inc., Brooklyn, N. Y.—**R. J. Schoelkopf** and **E. Schwitzke**; Wilmington Provision Co., Wilmington, Del.—**Max Matthes**; and C. B. **Heinemann**, secretary.

Harvey Rector, Armour West Coast Veteran, Dies Suddenly

Harvey A. Rector, general sales and department manager of the Hauser Packing Company, Los Angeles, since it was purchased by Armour and Company in 1935, died on April 3 at his home in Los Angeles from a heart attack. Mr. Rector had been with Armour and Company for the past 24 years, during all of which time he was in active service.



H. A. RECTOR

Mr. Rector started with Armour in 1916 as a general line salesman at Denver, Colo. He was later transferred to Fresno, Calif., as branch manager. From this post he was promoted to manager of the Honolulu, Hawaii, branch. He was recalled to this country and was made manager of the Los Angeles branch, holding this position until January, 1935, when he was transferred to his late post.

New Oppenheimer Plant Is Viewed by Packer Guests

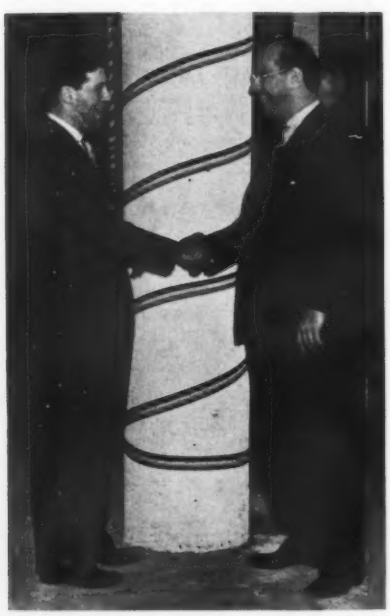
Settled in its new and larger plant at 430 Washington st., New York, the Oppenheimer Casing Co., officially opened its doors on April 21 and greeted a large number of guests who had been invited to inspect the new headquarters and participate in celebrating the event.

Vice president **Edward H. Oppenheimer**, general manager of the company's activities in New York, and vice president **Seymour Oppenheimer**, who makes his headquarters at Chicago, welcomed the guests and were assisted by members of the office and sales staff.

A buffet luncheon and entertainment were provided. In a gift drawing Bruno Borsch, local sausage manufacturer, was awarded a portable radio, while the prize for the lady, Chanel's perfume, went to Mrs. Otto Hahn, whose husband is sales manager for Kollner's, Inc.

Visitors included meat packers, sausage manufacturers and wholesale meat dealers, as well as many from other fields. Among the guests were **Charles P. Kramer** and **Carl Pahlmann**, with **Mrs. Kramer** and **Mrs. Pahlmann**, Kramer Provision Co., Inc., Trenton, N. J.; **George** and **Louis Kast, M. W. Doyle** and **Peter Morsicono**, Henry Kast, Inc., New York; **Mrs. H. G. Stein**, E. Greenebaum Co., New York; **Adolf Feucht**, Brooklyn, N. Y.; **Henry Merkel**, Merkel, Inc., Jamaica, N. Y.; **C. H. Malone** and **R. Gesell**, Mintzer & Kneisler, Philadelphia, Pa.;

Barnett Miller, Harold I. Horwitz and **Max Chernis**, Boston Sausage & Provision Co., Boston, Mass.; **Ina Goldsmith, Mildred Pincus, Abe Cooper** and **Mrs. Cooper, Ted Wasserman, R. M. Heyne, J. Lipman** and **Mrs. Lipman**, Bernard S. Pincus, Inc., Philadelphia,





AT OPPENHEIMER OPENING

RIGHT. — Guests from the meat industry waiting to learn the winner of the portable radio, one of the gifts given by the Oppenheimer Casing Co. at the opening of its new plant in New York City.

LEFT.—Vice president Edward Oppenheimer, general manager of the new plant at New York, greets vice president Seymour Oppenheimer of Chicago.

Pa.; A. C. Hofmann, Hofmann Packing Co., Syracuse; B. Dobren and Mrs. Dobren, Federal Prov'n. Co., New York.

Henry Greenberg, Philip Fleischer Inc., New York; Max Kollner and Mrs. Kollner and Otto Hahn and Mrs. Hahn, Kollner's, Inc., Jamaica, N. Y.; Bruno Borsch and Rudolph Fichtl, accompanied by Mrs. Borsch and Mrs. Fichtl, Bruno Borsch Co., New York; G. L. Simonetti, Adolf Gobel, Inc., Brooklyn, N. Y.; Henry Ederle, sr., and Henry Ederle, jr., Ederle Bros., New York; Sidney Rabinowitz, Colonial Provision Co., Boston, Mass., and Edwin and Herbert Pfeifer, and wives, Henry Pfeifer, Newark.

Bohack Co. Elects Officers; Reports on 1939 Operations

H. C. Bohack Co., Brooklyn, has obtained exclusive rights on the new Tenderay process for its markets in Brooklyn and Long Island and will begin an extensive advertising campaign featuring the process early in May, president Ernest Haberle told the stockholders at their annual meeting on April 17. The following were elected directors:



E. HABERLE

Alfred Bleyer, Henry C. Bohack, Paul G. A. Bohack, Charles L. Bussing, Ernest Haberle, Fred Hildebrand, Fred W. Meyer, William E. Rae and Henry Schmidt. The officers are: President, Ernest Haberle; vice presidents, Henry Schmidt and Fred W. Meyer; treasurer, William E. Rae; secretary, Harold J. Vogt, and assistant secretary, Edward R. Schuster.

Announcement was made that the company's total sales for the fiscal year ended January 31, 1940, was $23,841,802, an increase of over $1,000,000, and that a net profit of $51,970.77 was realized, the first shown since 1934.

Executive Changes Made By Arbogast & Bastian

Walter S. Bastian, president of Arbogast & Bastian, Allentown, Pa., was elected chairman of the board of directors at a recent meeting of the board. Morris B. Shaffer, for many years vice president of the company, was promoted to the presidency to succeed Mr. Bastian. Alec Chesser, formerly Eastern supervisor for the Visking Corp., Chicago, was elected vice president and sales manager of the company.

Two other newcomers chosen for executive positions were John G. Stephen, formerly with J. H. Gilby & Co., as secretary and comptroller, and Emil Lairer, well-known in Eastern packing circles, as plant supervisor of hog cutting, sausage and smoked meats. Other officers include Noel B. Wertman, purchasing agent, and William Kerchner, credit manager.

The company has undertaken an extensive rehabilitation program. Among recent improvements are a new cutting floor, bacon press, cooler rooms, power plant boilers and stokers, a rendering plant and a dozen new trucks to handle distribution of its product.

Morris Steiner, President Steiner Packing Co., Dies

Morris L. Steiner, president of the Steiner Packing Co., Youngstown, O., died April 11 from a heart attack. He was only 50 years old. Mr. Steiner had bought and sold meat all over the Western Reserve and was well known among packers and meat dealers throughout that area. In 1929 he formed the company which he headed by a merger of the old Steiner Provision Co. and the Youngstown Packing and Provision Co.

Mr. Steiner began in the meat business as a driver for a butcher and also worked for a retailer. He was a route salesman for ten years for a Cleveland meat packing company. In 1912 he returned to Cleveland and formed a partnership with Christopher Truog.



OKLAHOMA PACKER EXPANDS IN NEW BUILDING

New plant of Peoples Packing Co., Oklahoma City, has capacity of 50 cattle and 125 hogs per day, four times the volume of previous plant. The novel sign consists of red face brick letters on white cement background. Six new smokehouses, a new fleet of 11 refrigerated trucks and a new beef cooler are among the features of the present modernization program. J. C. Ridley is president of the company.

Personalities and Events Of the Week

Thomas E. Wilson, chairman of the board, Wilson & Co., John W. Rath, president, Rath Packing Company, Waterloo, Iowa, and C. W. Gaylord, president, Gaylord Container Corp., were in Jackson, Miss., last week attending a "get together" banquet of shippers and directors of the Illinois Central Railroad. Mr. Wilson and Mr. Rath also attended a similar function held in Memphis, Tenn.

G. A. Billings, vice president, and N. H. Cory, dry sausage department, Cudahy Bros. Co., Cudahy, Wis. were New York visitors during the past week.

Chester G. Newcomb, president, Lake Erie Provision Co., has returned to Cleveland after spending a few days in Chicago.

Ben Abraham, president, Abraham Bros. Packing Co., recently took part in the Good Will Tour of the Memphis Chamber of Commerce. In the two-day tour the ambassadors of good will visited 19 points in west Tennessee and west Kentucky.

R. D. Hebb, public relations department; Walter C. Clegg of vice president P. C. Smith's office, Swift & Company, Chicago, and C. T. Richardson, construction department, Swift & Company, Boston, were New York visitors this week.

R. L. Atkinson, president, Transparent Package Company, Chicago, has returned from a Florida vacation.

Louis M. Droll, district manager of the Cudahy Packing Co. for many years in the Old Dutch Cleanser department, and a life-long resident of Peoria, Ill., died recently in that city. He was 50 years old.

G. W. Birrell, secretary-treasurer and sales manager of the Chris. Kunzler Co., Lancaster, Pa., visited the Chicago offices of THE NATIONAL PROVISIONER during the past week.

Sam Kornblum, vice president, Kornblum Packing Co., Kansas City, Mo., stopped off in Chicago last week on his way East.

W. G. Winkler, manager of the beef cuts division, Armour and Company, Chicago, has just returned from a three weeks' vacation in Biloxi, Miss., and New Orleans. "Bill" feels much rested after basking in the southern sunshine.

Lacy Lee, Inc., well-known Chicago provision brokers, announce the opening of new offices in Suite 2006, Board of Trade bldg., Chicago. The firm now has much larger quarters and extends a hearty invitation to its many friends to drop in when in Chicago.

John Morrell & Co. has announced that C. R. Sutton has been transferred from the company's New York district office, where he has been office manager, to the general offices at Ottumwa, to become assistant comptroller. Mr. Sutton has been in the employ of the

(Continued on page 34.)

IT'S FLEXIBLE!



To provide maximum insulation efficiency, not only flat surfaces must be completely insulated, but arched surfaces likewise. For even small open spaces allow air and moisture to enter behind the insulation and gradually cause disintegration of the entire corkboard itself. Because UNITED'S B.B. Corkboard is Block Baked by a patented process of combined internal and external heating, it possesses a greater strength and flexibility.

UNITED
CORK COMPANIES
KEARNY, NEW JERSEY
Manufacturers and Erectors of Cork Insulation
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Albany, N. Y.	Cincinnati, Ohio	Milwaukee, Wis.	Pittsburgh, Pa.
Baltimore, Md.	Cleveland, Ohio	New Orleans, La.	Rock Island, Ill.
Boston, Mass.	Hartford, Conn.	New York, N. Y.	St. Louis, Mo.
Buffalo, N. Y.	Indianapolis, Ind.	Philadelphia, Pa.	Waterville, Me.
Chicago, Ill.	Los Angeles, Calif.		



SOMETHING NEW IN "Swing"

There's something new in the swing of cold storage doors. It's Jamison "Adjustoflex" Hinges.

New in action! New in appearance! Not in 30 years has there been such advancement in cold storage door hinge design.

An entirely new principle of operation is employed. Spring tension regulation is combined with self-adjustment in normal operation.

Rugged construction is featured, too. Ample bearing surfaces and large hinge pins assure strength and long life. Ball bearings contribute to smooth action.

Strikingly streamlined to blend with the lines of the door and the new "Model W Wedgetight" Fastener. The hinge blade is long and low, permitting a compact hinge butt *and* a greatly reduced radius of door swing.

Don't be content with old, profit-losing doors. Insist on new Jamison Cold Storage Doors—the only doors equipped with the new "Adjustoflex" Hinges and the new "Model W Wedgetight" Fastener. For information write to the Jamison Cold Storage Door Co., Hagerstown, Md. Branches in principal cities.



Jamison Standard Door

Jamison, Stevenson & Victor Doors

JAMISON-BUILT DOORS—FOR A BETTER SEAL

JAMISON BUILT DOORS

REFRIGERATION and Air Conditioning

MEAT PLANT REFRIGERATION

A Complete Course for Executives and Workers Prepared by—

The National Provisioner

LESSON 59

Friction in Pumps

WHEN a liquid is pumped through a pipe line it meets resistance from the static head and the friction between the pipe wall and the liquid. The amount of pipe friction depends on the diameter of the pipe and the condition of its interior surface.

One of the greatest mistakes made by meat plant engineers and master mechanics is to try to pump more liquid through a pipe line than its normal capacity. When this is done there is a rapid increase in friction head and in the amount of power required.

The accompanying tables give the nominal capacity in gallons per minute of pipes of various diameters and the loss of head per 100 ft. Fittings, such as elbows, tees and valves, increase frictional resistance. Another table gives the number of feet of straight pipe equivalent to the different fittings.

It should be remembered that the outlet size of a pump does not determine the size of the discharge line, which should be figured independently and increased as required for the first outlet.

Frictional resistance plays a particularly important part in equalizing the flow of water over an individual ammonia condenser system. Any change in the original pressure, after the valves are set, causes unequal distribution.

Calculating Liquid Flow

A pipe capacity table is very handy for quick estimates. However, pump sizes should be checked with a reliable manufacturer after the quantity in head has been determined. A rule-of-thumb formula for determining flow of liquids through pipe lines, and generally applicable to flow of gases, is:

$Q = A \times V$

More accurate results will be obtained in figuring flow of water if a constant is used in the foregoing formula as follows:

$Q = .8A \times V$

Q is cubic feet of water per minute.

A is area of openings in line in square feet.

V is velocity of water in feet per minute.

.8 is a constant.

It will be noted that Q is determined in cubic feet per minute. To convert cubic feet per minute to gallons per minute, multiply by 8⅓, since there are 8⅓ gallons of water per cubic foot. A cubic foot of water weighs 62½ lbs. Brine weighs approximately 1½ times as much as water.

Velocity is the unknown quantity in the foregoing formula and must be estimated. It should not exceed 500 ft. per minute for water and 350 ft. per

Capacities of Pipe in Gallons Per Minute and Loss of Head in Feet Per 100 Feet

Velocity	¾-in. pipe		1-in. pipe		1¼-in. pipe		1½-in. pipe		2-in. pipe		2½-in. pipe		3-in. pipe		4-in. pipe		5-in. pipe		Velocity
	Capacity	Friction	Capacity	Friction	Capacity	Friction	Capacity	Friction	Capacity	Friction	Capacity	Friction	Capacity	Friction	Capacity	Friction	Capacity	Friction	
3	4.03	5.98	7.31	4.08	11.6	3.91	16.5	2.7	29.4	2.04	47.2	1.71	66	1.36	117	1.02	184	.82	3
4	5.50	10.49	9.82	6.83	15.1	5.79	22.0	4.5	39.2	3.4	61.0	2.6	81	2.28	156	1.71	245	1.67	4
5	6.89	13.64	12.24	10.25	19.4	8.32	27.4	6.8	48.9	5.1	76.5	4.1	110	3.4	196	2.56	306	2.05	5
6	8.25	19.12	14.68	14.33	23.2	12.34	32.9	9.5	58.7	7.2	91.8	5.7	132	4.7	236	3.6	367	2.87	6
7	9.65	25.44	17.13	19.08	26.8	16.56	34.4	12.7	68.5	9.5	107	7.6	154	6.3	275	4.8	428	3.8	7
8	11.01	32.64	19.58	24.50	30.3	20.82	43.8	16.3	78.3	12.2	122	9.8	176	8.1	314	6.1	490	4.9	8
8½	11.70	36.60	20.80	27.46	32.5	23.65	46.6	18.3	83.2	13.7	130	10.9	187	9.1	334	6.9	521	5.5	8½
9	12.39	40.40	22.03	30.58	34.5	25.51	49.4	20.4	88.1	15.2	138	12.2	198	10.1	352	7.6	551	6.1	9
9½	13.08	44.80	23.25	33.88	36.3	28.34	52.2	22.5	93.6	16.9	145	13.5	209	11.2	372	8.5	581	6.7	9½
10	13.79	49.68	24.48	37.33	38.3	30.53	55.3	24.9	97.9	18.6	153	14.9	220	12.4	391	9.3	612	7.5	10
10½	14.45	54.40	25.70	40.06	40.1	33.56	57.7	27.3	103	20.4	161	16.3	231	13.6	411	10.2	642	8.2	10½
11	15.15	59.60	26.92	44.75	42.6	36.41	60.5	29.8	108	22.3	168	17.9	242	14.9	431	11.1	673	8.9	11
11½	15.85	64.80	28.15	48.71	44.6	40.12	63.2	32.5	113	24.3	176	19.5	253	16.2	450	12.1	704	9.7	11½
12	16.52	70.40	29.37	52.83	46.8	43.73	66.6	35.2	117	26.4	184	21.0	264	17.6	471	13.2	735	10.6	12
13	17.94	82.00	31.82	61.58	49.5	49.91	71.5	41.0	127	30.7	199	24.6	286	20.5	510	15.3	796	12.3	13
14	19.30	94.80	34.27	71.00	53.5	57.25	77.8	47.3	139	35.5	214	28.4	308	23.7	549	17.7	857	14.2	14
15	20.75	108.00	36.72	81.08	57.4	64.82	82.5	54.0	149	40.5	230	32.4	330	27.0	587	20.3	918	16.2	15

Velocity	6-in. pipe		7-in. pipe		8-in. pipe		10-in. pipe		12-in. pipe		15-in. pipe		18-in. pipe		20-in. pipe		24-in. pipe		Velocity
	Capacity	Friction	Capacity	Friction	Capacity	Friction	Capacity	Friction	Capacity	Friction	Capacity	Friction	Capacity	Friction	Capacity	Friction	Capacity	Friction	
3	264	.68	360	.58	470	.51	734	.41	1058	.34	1652	.27	2379	.23	2938	.20	4230	.17	3
4	353	1.14	470	.98	627	.85	979	.68	1410	.57	2203	.46	3173	.38	3917	.34	5640	.28	4
5	440	1.70	600	1.46	783	1.28	1224	1.02	1763	.87	2755	.68	3965	.57	4896	.51	7051	.43	5
6	528	2.38	720	2.05	940	1.79	1468	1.43	2115	1.21	3304	.96	4758	.80	5875	.72	8461	.60	6
7	617	3.18	840	2.72	1097	2.38	1713	1.90	2468	1.62	3855	1.27	5552	1.06	6854	.95	9870	.79	7
8	706	4.08	959	3.49	1253	3.06	1958	2.45	2820	2.08	4407	1.63	6345	1.36	7833	1.22	11280	1.01	8
8½	749	4.57	1019	3.92	1331	3.43	2081	2.74	2996	2.33	4688	1.82	6742	1.52	8323	1.37	11985	1.14	8½
9	794	5.09	1079	4.36	1410	3.82	2203	3.05	3173	2.60	4958	2.04	7138	1.70	8812	1.53	12690	1.27	9
9½	837	5.61	1139	4.83	1488	4.23	2326	3.38	3349	2.88	5232	2.25	7535	1.88	9302	1.69	13395	1.40	9½
10	882	6.21	1199	5.33	1567	4.66	2448	3.73	3525	3.17	5508	2.50	7931	2.07	9792	1.87	14100	1.55	10
10½	925	6.82	1259	5.84	1646	5.22	2571	4.09	3701	3.48	5783	2.73	8329	2.27	10281	2.05	14805	1.70	10½
11	970	7.45	1319	6.39	1723	5.59	2693	4.47	3878	3.80	6058	2.98	8725	2.48	10771	2.24	15510	1.86	11
11½	1013	8.11	1379	6.95	1801	6.08	2815	4.87	4054	4.14	6335	3.25	9122	2.70	11258	2.43	16215	2.03	11½
12	1058	8.80	1439	7.54	1880	6.60	2938	5.28	4230	4.49	6610	3.52	9518	2.93	11750	2.64	16920	2.20	12
13	1145	10.26	1559	8.74	2037	7.90	3182	6.15	4583	5.23	7161	4.10	10310	3.42	12729	3.08	18330	2.56	13
14	1233	11.83	1679	10.14	2193	8.87	3472	7.10	4935	6.03	7711	4.73	11104	3.93	13708	3.55	19740	2.95	14
15	1321	13.51	1799	11.58	2350	10.01	3672	8.10	5288	6.89	8262	5.40	11897	4.50	14688	4.05	21150	3.37	15

Table of Pipe Capacities

The following table can be used in selecting the proper size pipe for delivering any certain quantity of water. The sizes selected are based on not allowing the friction per hundred feet to exceed 4 lbs.

Gal. per sq. in.	Pipe area	Friction per 100 ft. in lbs.	Size of pipe in.	GPM.	Cent. pump size
9.5	.53	3.3	¾	5	2 x 1½
12.0	.86	3.2	1	10	2 x 1½
10.0	1.5	2.88	1¼	15	2 x 1½
13.0	1.5	4.07	1¼	20	2 x 1½
15.0	2.0	3.75	1½	30	2 x 1½
12.0	3.36	1.6	2	40	2 x 1½
15.0	3.36	2.44	2	50	2 x 1½
18.0	3.36	3.5	2	60	2 x 1½
14.0	4.78	1.5	2½	70	2 x 1½
16.0	4.78	2.0	2½	80	2 x 1½
20.0	4.78	3.2	2½	100	2 x 1½
17.0	7.39	1.99	3	125	3 x 1½
20.0	7.39	2.85	3	150	3 x 2½
24.0	7.39	3.85	3	175	3 x 2½
20.0	9.89	2.38	3½	200	3 x 2½
25.0	8.89	3.7	3½	250	3 x 2½
24.0	12.73	2.66	4	300	4 x 4
27.0	12.73	3.65	4	350	4 x 4
20.0	20.0	1.61	5	400	4 x 4
23.0	20.0	2.0	5	450	4 x 4
25.0	20.0	2.4	5	500	4 x 4
30.0	20.0	3.5	5	600	4 x 4
25.0	28.89	2.0	6	700	5 x 5
28.6	28.89	2.5	6	800	5 x 5
32.1	28.89	3.5	6	900	5 x 5
19.6	51.16	1.0	8	1000	6 x 5
28.4	51.16	2.0	8	1500	6 x 6
39.2	51.16	3.5	8	2000	8 x 8
30.9	81.58	1.75	10	2500	10 x 10
37.2	81.58	2.6	10	3000	10 x 10

Straight Pipe Equivalents of Fittings

Pipe Size in Inches	1½" to 8"	10" and above
Gate valve (not globe valve)..	12	15
Long sweep 90-deg. elbow or run of standard tee.....	16	20
Medium sweep 90-deg. elbow or run of standard tee reduced in size one-quarter.....	20	25
Standard short radius 90-deg. elbow or run of tee reduced in size one-half	30	40
Tee through side outlet.....	60	80
Check valve	30	40
Foot valve (area through valve 20 per cent greater than area of pipe)	30	40

Friction through 45-deg. elbows may be taken at one-half that through 90-deg. elbows.

minute for brine. Lesson 19 should be reviewed at this time.

QUESTIONS

(For the student to answer.)

1.—What is suction head?
2.—What is static head?
3.—What is friction head?
4.—What is velocity head?
5.—How is head measured?

6.—Does a standard 90-deg. ell have as much resistance to the flow of water as a long radius ell?

7.—Does a welded line have more resistance to liquid flow than a screwed line?

8.—Does a gasket union, a railroad union or a flange union have the greatest resistance?

9.—Can water be pumped with compressed air? Under what conditions is compressed air used to pump water?

10.—Does brine have more frictional resistance than water?

EDITOR'S NOTE.—Determination of proper pump capacity will be discussed in Lesson 60.

PERISHABLE FREIGHT HEARING

Inspection of cars and retop icing in transit by carriers are among the topics to be discussed at a shippers' public hearing of the National Perishable Freight Committee at 10 a. m. on April 30 at the committee's headquarters, Union Station bldg., Chicago.

U. S. EATS MORE MEAT

Meat consumption in the United States during the winter just past advanced about 11 per cent over that of the corresponding period a year ago, according to the Institute of American Meat Packers. Most of the increase was in pork.

Pork consumption in the five months from November through March, based on Department of Agriculture figures, was apparently about 19 per cent higher than that of the previous winter, and approximately 9 per cent above the average for the same months in 1929 to 1933, before the pork shortage that followed the 1934 drought and government crop reduction program.

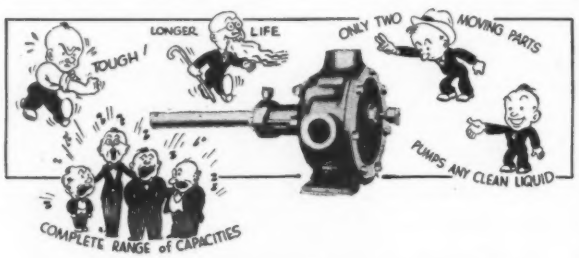
Consumption of beef during the past winter was about 5 per cent greater than a year earlier, the Institute reports, and about 21 per cent above average for the five-year period cited. Lard consumption gained 15 per cent over the previous winter and was 11 per cent over the five-year average. Veal and lamb consumption showed little change from the winter of 1938–1939, but were considerably in excess of the five-year average.

Most current pork prices, the Institute states, are from 5 to 35 per cent below those of a year ago, while the corresponding index of wholesale food prices in general is about 4 per cent higher than a year ago. Lard prices, which recently sank to the lowest levels in six years, have made some recovery.

PACKER AND FOOD STOCKS

Price ranges and total sales of listed stocks for week ended April 24:

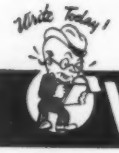
	—Week ended April 24—				Apr. 17
	Sales	High	Low	Close	Close
Amal. Leather.	2,800	2⅜	2¼	2⅜	2⅛
Do. Pfd.	900	18	18	18	16½
Amer. H. & L.	14,100	6½	6¼	6¼	6
Do. Pfd.	500	38	38	38	36¾
Amer. Stores ..	1,100	14	14	14	14⅛
Armour Ill.	97,600	7⅝	7¼	7⅜	6⅞
Do. Pr. Pfd.	6,100	64	62½	62½	58¼
Do. Pfd.	....	..	..	..	64⅝
Do. Del. Pfd.	200	109½	109½	109½	109¾
Beechnut Pack.	300	121	121	121	125
Bohack, H. C.	....	..	..	..	2½
Do. Pfd.	60	27¼	27¼	27¼	26⅝
Chick. Co. Oil.	3,400	14⅜	14⅜	14⅜	15½
Childs Co.	900	6	6	6	6
Cudahy Pack...	4,500	17	16½	16½	14⅝
Do. Pfd.	120	70	70	70	69
First Nat. Strs.	900	44¼	43¼	44½	44½
Gen. Foods ...	9,700	49	48½	48½	48⅜
Do. Pfd.	....	..	..	..	118
Glidden	1,900	18	17⅞	18	17⅜
Do. Pfd.	100	43⅜	43⅜	43⅜	44¼
Gobel Co.	11,700	4	3⅞	3⅞	3⅝
Gr. A & P New.	175	112½	112½	112½	107½
Do. Pfd.	25	129	129	129	128½
Hormel, G. A..	50	36¼	36¼	36¼	35
Hygrade Food..	700	2¾	2¾	2¾	2¾
Kroger G & B.	9,100	34½	34¼	34⅜	33¼
Libby McNeill..	18,900	9	8⅝	8⅝	8¼
Mickelberry Co.	5,500	4	4	4	3⅜
M. & H. Pfd...	750	7¾	7½	7¾	6½
Morrell & Co..	....	..	..	..	41¼
Nat. Tea	5,600	7¾	7½	7½	7⅜
Proc. & Gamb..	4,400	71⅝	71⅜	71⅝	71½
Do. Pfd.	170	113½	113½	113½	114
Rath Pack. ...	100	40	40	40	36¾
Safeway Strs...	3,000	51¼	50⅞	50⅞	51
Do. 5% Pfd..	800	108¼	108	108	108
Do. 6% Pfd..	....	..	..	..	111⅜
Do. 7% Pfd..	....	..	..	..	111⅜
Stahl Meyer ...	....	..	..	..	1⅝
Swift & Co....	15,800	24⅞	24⅝	24⅝	24
Do. Intl.	2,300	30¼	29¾	30	30¼
Trunz Pork ...	....	..	..	..	8½
U. S. Leather..	5,400	7⅛	7⅛	7⅛	7⅛
Do. A	8,800	12	11⅝	11⅝	11⅜
Do. Pr. Pfd..	100	71	71	71	64
United Stk. Yds.	2,600	2¾	2⅝	2¾	2⅝
Do. Pfd.	800	7⅝	7⅝	7⅝	7
Wesson Oil	4,700	27½	26½	26½	27¾
Do. Pfd.	300	73½	73½	73½	72
Wilson & Co...	53,200	7⅝	7	7	6⅜
Do. Pfd.	2,000	69¾	69	69	65



To make a long story short, we present the following Viking facts in "brass-tack" form.

1. All Viking Rotary Pumps have just 2 moving parts . . . less wear, longer life.
2. Capacities range from ½ to 1,050 GPM.
3. Viking rotates in both directions with like accuracy, like efficiency.
4. Complete selection of portable and stationary models . . . special mountings, metals and drive arrangements.
5. Viking handles any clean liquid—hot or cold—regardless of viscosity.
6. Every Viking Pump is given a "hard-boiled" test before it leaves the factory . . . when it reaches you it's ready to go.

Send your request by post card, letter, telegram or cable . . . the proper Bulletin, with pictures, specifications and helpful installation hints, will be hurried back by return mail.



VIKING PUMP CO.
CEDAR FALLS IOWA

AIR CONDITIONING

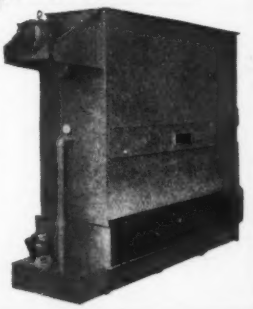
NIAGARA DUO-PASS AERO CONDENSER
(Patented)

THE leading modern condenser for refrigerant gases.

Saves money by reducing consumption both of power and condenser water.

Experience shows that the Niagara patented Duo-Pass pre-cooling of refrigerant gas not only prevents formation of scale on condenser tubes, but also lowers condensing temperatures and pressures, making important power savings.

Write for proof in the form of operating records.



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—Pittsburgh, Penn.

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CLEVELAND, OHIO

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Almost simultaneously with the appearance of the first article under the general head of "The National Provisioner's School of Refrigeration" in July, 1938, letters of commendation were received from packers, superintendents, master mechanics and engineers in all sections of the country. The course had hardly gotten under way before requests for reprints began to come in. These have continued in increasing numbers.

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The contents of "Meat Plant Refrigeration and Air Conditioning" are the first ever prepared on refrigeration from the packinghouse angle

THE NATIONAL PROVISIONER, 407 SO. DEARBORN ST., CHICAGO, ILL.

Please mail as soon as off the press ——— copies of "Meat Plant Refrigeration and Air Conditioning" at $1.50 per copy to

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The first tender hams cured with the **NEVERFAIL** 3-Day Ham cure were a sensation! Even today, although the ready-to-eat ham is widely known, the product of the **NEVERFAIL** 3-Day Ham Cure is *still a sensation.* What makes it so popular is the full-bodied, genuine, "old-fashioned" ham flavor . . . the absence of that "porky" taste which is sometimes left by other short-time cures.

What's more, the Neverfail 3-Day Ham Cure will give your product a distinctive flavor that cannot be obtained by any other process. Actually, it *"pre-seasons"* the meat. A delicious, aromatic fragrance *goes in with the cure*—permeates every morsel and fibre.

Your customers will buy **NEVERFAIL**-cured hams *on sight* . . . because of their even, eye-catching pink color . . . and reorder on *taste.* See them and taste them yourself! Let us arrange a demonstration *in your own plant.* Write us!

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March Sausage and Bacon Production Above February

MARCH sausage production in federally inspected plants inched up 1,294,176 lbs. over the February seasonal low. While slightly under the same month in 1939, March volume was the fourth highest in ten years, having been exceeded only in 1939, 1937 and 1936. Volume was maintained in the face of heavy supplies of fresh meat, especially pork.

Production of fresh sausage, while 1,215,133 lbs. under February, showed an increase of 1,153,667 lbs. over March, 1939. While smoked sausage output was 1,032,998 lbs. under last March, it was 1,900,717 lbs. heavier than in February, 1940.

Production of each kind of sausage during March, 1940 and 1939:

	March 1940, lbs.	March 1939, lbs.
Fresh (finished)	11,301,657	10,147,990
Smoked and/or cooked	41,394,510	42,427,408
To be dried or semidried	8,320,827	8,588,472
Total	61,016,994	61,163,870

March production in federally inspected plants during each of the last ten years:

MARCH.	lbs.	MARCH	lbs.
1940	61,016,994	1935	55,156,000
1939	61,163,870	1934	59,009,000
1938	58,535,167	1933	49,694,000
1937	64,932,229	1932	48,812,000
1936	61,290,000	1931	54,817,000

Sausage production during the first five months of the packer year, 1940, compared with 1939:

	1940 lbs.	1939 lbs.
March	61,016,994	61,163,870
February	59,722,818	53,478,635
January	66,216,941	61,138,875
December	59,581,307	59,452,050
November	67,155,268	66,612,075

Volume of meat loaves and jellied products made in federally inspected plants during March totaled 7,962,505 lbs. This was approximately 300,000 lbs. under February production and the smallest month's volume turned out during the five months of the current packer year.

Volume of sliced bacon produced in federally inspected houses continues to make consistent gains. March output of 23,306,006 lbs. has been exceeded only in January of the packer year to date; January production was 24,778,179 lbs. The March total was more than 1½ million lbs. above February volume, and 2½ million lbs. over March, 1939. Low prices have been the major factor in increasing sliced bacon sales.

Sliced bacon production during the packer fiscal year, with comparisons:

	1940 lbs.	1939 lbs.	1938 lbs.
March	23,306,006	20,793,982	18,604,313
February	21,755,898	18,169,033	16,390,822
January	24,778,179	19,860,787	17,271,741
December	22,336,794	18,607,520	17,381,833
November	22,903,197	19,967,669	16,800,154

Amount of canned meat products turned out in March was slightly under February production, but was about 14 million lbs. above March last year. Production of canned pork at 29,207,296 lbs. was almost double that of March, 1939, when the total was 15,784,000 lbs.

Total meat and meat food products canned during the first five months of the packer year, with comparisons:

	1940 lbs.	1939 lbs.
March	74,112,092	58,188,360
February	74,901,625	50,266,019
January	78,877,936	53,877,227
December	68,982,588	53,616,415
November	62,180,588	48,752,624

PORK PRODUCTS EXPORTS

Exports of provisions from Atlantic and Gulf Ports for week ended April 20, 1940, as far as segregation is available:

TOTAL EXPORTS BY PORTS*

From	Pork, Bbls.	Bacon and Hams, M lbs.	Lard, M lbs.
New York	...	25	16
New Orleans	...	....	343
Total week	...	25	359
Previous week	...	11	1,455
2 weeks ago	...	825	3,174
Cor. week 1939	...	4,312	2,763

SUMMARY NOV. 1, 1939 TO APRIL 20, 1940

	1939, to 1940	1938, to 1939
Pork, M lbs.	153	55
Bacon and hams, M lbs.	28,297	102,523
Lard, M lbs.	49,020	91,888

*Export data not available from Canadian ports.

CANADA DOUBLES EXPORTS

MONTREAL.—As was expected, Canadian exports of bacon and hams to the United Kingdom increased materially during the first three months of 1940 compared with the same period of 1939, the Dominion Bureau of Statistics reports. March exports to Britain, totaling 29,377,000 lbs., were 10,300,000 lbs. greater than in February, 1940, and were 13,200,000 lbs. greater than in March a year ago. For the first three months of 1940, exports to the United Kingdom amounted to 84,000,000 lbs., worth over $14,500,000, as compared with exports of 43,300,000 lbs. in the corresponding period of 1939.

Canada is thus fulfilling the agreement entered into with the United Kingdom last fall under the terms of which Canada was to ship up to 5,600,000 lbs. of bacon per week. Further evidence that Canada has ample supplies of pork products is shown by cold storage statistics. On April 1, 1940, there were 60,900,000 lbs. of pork in cold storage compared with 34,800,000 lbs. on April 1, 1939.

What effect the loss of Denmark as a source of supply will eventually have is difficult to forecast.

MEAT IMPORTS AT NEW YORK

Imports for the period April 11 to April 17, inclusive, at New York:

Point of origin	Commodity	Amount, lbs.
Argentina	Canned corned beef	54,000
Brazil	Dried beef	8,330
Canada	Fresh chilled pork cuts	180
	Fresh chilled calf livers	1,320
	Fresh chilled veal livers	240
	Smoked sausage	3,011
	Smoked bacon	5,155
Denmark	Cooked sausage in ties	5,198
Italy	Smoked sausage	2,756

CUT-OUT RESULTS LESS FAVORABLE AS HOGS RISE

Hog costs continued to advance, the cost of light and heavy weights rising 77c per cwt. over last week, and medium weights 73c per cwt. Product values registered some gains also, ranging from 53c on the light averages to 46c on the heavies, but this was not enough to offset the increase in costs.

	Pct. live wt.	Price per lb.	Value per cwt. alive	Pct. live wt.	Price per lb.	Value per cwt. alive	Pct. live wt.	Price per lb.	Value per cwt. alive
	180-220 lbs.			220-240 lbs.			270-300 lbs.		
Regular hams	14.00	12.5	$ 1.75	13.70	12.4	$ 1.70	13.50	12.2	$ 1.65
Picnics	5.60	8.7	.49	5.40	8.6	.46	5.10	8.5	.43
Boston butts	4.00	11.3	.45	4.00	11.1	.44	4.00	10.4	.42
Loins (blade in)	9.80	16.5	1.62	9.60	16.0	1.54	9.10	15.0	1.37
Bellies, S. P.	11.00	8.2	.90	9.70	7.8	.76	3.10	6.7	.21
Bellies, D. S.	....	...	...	2.00	5.5	.11	9.90	5.5	.54
Fat backs	1.00	3.6	.04	3.00	4.0	.12	4.50	4.5	.20
Plates and jowls	2.50	3.3	.08	3.00	3.3	.10	3.30	3.3	.11
Raw leaf	2.10	5.2	.11	2.20	5.2	.11	2.10	5.2	.11
P. S. lard, rend. wt.	12.40	5.5	.68	11.00	5.5	.61	10.20	5.5	.56
Spareribs	1.60	9.1	.11	1.60	9.1	.11	1.50	9.1	.11
Trimmings	3.00	8.0	.24	2.80	8.0	.22	2.70	8.0	.22
Feet, tails, neckbones	2.00	...	.05	2.00	...	.05	2.00	...	.05
Offal and miscellaneous	....	...	.26	....	...	.26	....	...	.26
TOTAL YIELD AND VALUE	69.00		$ 6.78	70.00		$ 6.59	71.00		$ 6.24
Cost of hogs per cwt.		$ 6.36			$ 6.34			$ 6.25	
Condemnation loss		.03			.03			.03	
Handling and overhead		.63			.54			.44	
TOTAL COST PER CWT. ALIVE		$ 7.02			$ 6.91			$ 6.72	
TOTAL VALUE		6.78			6.59			6.24	
Loss per cwt.		$ .24			$ .32			$ .48	
Loss per hog		.48			.71			1.37	

Industry agrees that this is one of the Longest Steps Forward in the History of Process Control

Taylor's new line of instruments is now ready for you!

The New Taylor Fulscope Recording Controller

All the advantages of conventional control *and* a new control effect, Pre-Act*, merged in one completely redesigned controller! . . . Versatile! . . . Adaptable! . . . Convertible from the simplest to the most complete controller by merely adding unit assemblies! . . . Embodies outstanding new principles, new control effects achieved after years of experiment and research . . . Single duty and double duty mechanisms.

IT GIVES YOU THESE 5 FORMS OF CONTROL!

Fixed High Sensitivity—for on-and-off control where there are small time lags, large capacities, regardless of load changes.

Adjustable Sensitivity—for throttling control on applications with a wide range of time lags and capacities, where there are infrequent or minor load changes.

Adjustable Sensitivity with Automatic Reset (in same case) for precision control on applications with a wide range of time lags and capacities and gradual, sustained load changes.

***Adjustable Sensitivity with Pre-Act,** Taylor's new control effect based on *rate* of control-point deviation—for applications with a wide range of time lags and capacities, and sudden, momentary disturbances *without* sustained load changes.

***Adjustable Sensitivity with Automatic Reset and Pre-Act**—for ultimate precision control on applications involving a wide range of time lags and capacities *with* sudden and sustained load changes. The Fulscope Controller with all three effects can be adapted to almost any of your control problems.

Every one of these Design Features in the new Taylor Fulscope Controller

* * *

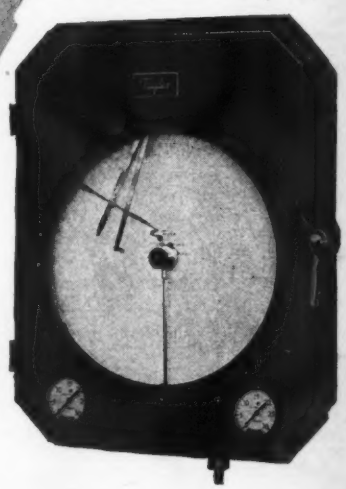
Automatic Reset (in the instrument case)—Fully and continuously adjustable over a much wider range, permitting the one correct adjustment your specific requirements demand. Simply, precisely constructed for even performance and easy maintenance.

Fully Pneumatic Sensitivity Reduction—A wider adjustment range gives you consistent performance, makes the effects of instrument friction almost negligible, automatically levels off fluctuations in air supply pressure. Pen movement and output pressure have a close linear relationship that insures better control on difficult applications. What's more, you may vary the controller sensitivity throughout the entire range, scarcely changing the output pressure or disturbing the control point.

Universal Application—Same control mechanism for temperature, pressure, rate of flow, and liquid level in recording and indicating controllers. (Temperature and pressure recording controllers are available in double-duty form.)

Quick-Change Unit Construction—No soldered joints, no screws to drop. The cases are drilled and tapped to accommodate the most complete forms of control, and to enable you to maintain easily and change from one form to another in the field.

Pre-Calibrated Actuating System—More easily interchangeable than ever.



Taylor TEMPERATURE, FLOW and LEVEL

Magnifying Adjustment Dials—Easier to read, adjust. Calibrated in absolute units.

Easy Convertibility—From direct to reverse action.

Universal Case—Made of die-cast aluminum, for face or flush mounting.

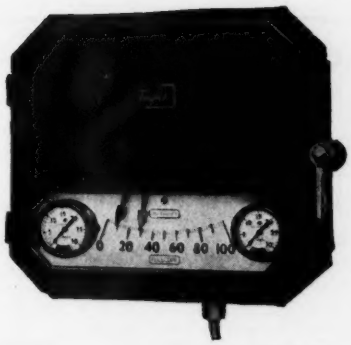
Electric Chart Clocks—Redesigned, with improved coils, oil-immersed gears, and slower-speed motors. Spring-driven clocks are an alternate. Explosion-proof electric clocks are also available.

Inbuilt Air Filters—Easy to clean, more efficient and accessible. They supplement large filter and drip well.

Quicker Chart-Changing—Separate pen lifter and hub nut eliminated.

Accessibility—Dials and knobs instantly accessible without removing chart and chart plate.

Greater Sturdiness—All vital parts of 18-8 stainless steel. Neoprene gaskets throughout.



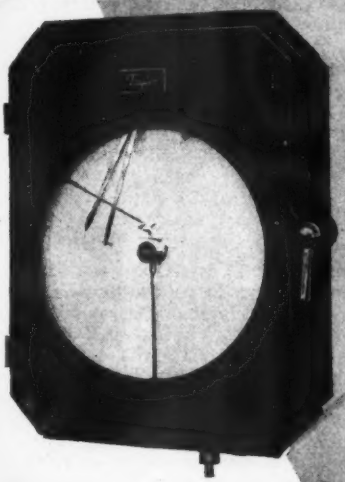
The new Taylor Fulscope Indicating Controller

. . . has the same unit construction, control mechanism, design features, and performance characteristics as the Taylor Fulscope Recording Controller, but comes in single-duty form only.

The new Taylor Recorder

Twin of Taylor Fulscope Recording Controller

. . . It contains all the fine features of the new Fulscope which are not exclusively control. Like its twin, it's an outstanding performer with significant improvements that promise all-round better results.



All these Design Features of the new Taylor Recorder are new advances

* * *

Universal Case—Made of die-cast aluminum, for face or flush mounting. Furnished standard in black, or in white finish if specified.

Easy Convertibility—All cases drilled and tapped so that various Fulscope Controller units may be added if desired. Your job of changing your instrument from a recorder into a controller is simple—no complicated fuss or bother.

Dust-proof, Moisture-proof Case—Neoprene door gaskets and improved door latch give a positive door seal. The sturdy, chromium-plated door handle has a bayonet action. Can be locked with a padlock, or cylinder type lock can be installed.

Rigid Chart Plate—This is of die-cast aluminum, permitting easier pencilled chart notations—it carries the chart clamp and pen lifter, too.

Quicker Chart-Changing—The chart-clamping mechanism combines the chart locking device and pen lifter in one unique design. You release the chart and lift the pen merely by pulling the chart knob outward—and replace the chart just as easily. It makes chart-changing a one-hand operation that takes only half as long.

Improved Actuating Units—The same strong, durable Taylor Bourdon spring has been made reversible, with a take-off lug and new sub-base. Accurate instrument calibration is now easier than ever.

Better Pen Arm Movement Assembly—The new-design spring and pen arm movement are lightweight 18-8 stainless steel, and may have an over-throw link for over-range or under-range protection. One-, two-, or three-pen combinations are available.

Electric Chart Clocks—They have been redesigned—now have improved coils, oil-immersed gears, and slower-speed motors. Spring-driven clocks are an alternate. Explosion-proof electric clocks are also available.

Simplified Tube System Replacements—The new replacements are calibrated and correctly located on the sub-base and changes in the field can be made easily and quickly.

THE NEW TAYLOR RECORDER IS AVAILABLE IN THESE 5 FORMS NOW!

Temperature Recorders—Mercury, vapor-actuated, or gas-actuated.

Pressure Recorders—Gauge, absolute, differential, and volumetric.

Flow Recorders

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Liquid Level Recorders

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INSTRUMENTS . . . Indicating • Recording • Controlling

CHICAGO PROVISION MARKETS

CASH PRICES

Based on actual carlot trading Thursday, April 25, 1940

REGULAR HAMS

	Green	*S.P.
8-10	12¾@13	13¼
10-12	12¾@13	13¼
12-14	12¾@13	13¼
14-16	13	13¼
10-16 range	12¾@13	....

BOILING HAMS

	Green	*S.P.
16-18	12¾	13¼
18-20	12¾	13¼
20-22	12¾	13¼
16-20 range	12¾	....
16-22 range	12¾	....

SKINNED HAMS

	Green	*S.P.
10-12	14¼	14½@14¾
12-14	14¼	14½@14¾
14-16	14¼	14½@14¾
16-18	13½	14
18-20	13	13½
20-22	12¼@12⅝	12⅝
22-24	11⅞@12	12½
24-26	11⅝	12¼
25-30	11 @11¼	11½
25/up, No. 2's inc	10¼@10½	....

PICNICS

	Green	*S.P.
4- 6	9¼	9½
6- 8	9	9¼
8-10	8¾	9
10-12	8⅝	8⅝
12-14	8¾	8¾
8/up, No. 2's inc	8⅝	....

Short shank ⅛@½c over.

BELLIES

(Square cut seedless)

	Green	*D.C.
6- 8	9¼	10¼
8-10	8⅝	9⅝
10-12	8	9
12-14	7⅞	8⅞
14-16	7 @ 7¼	8
16-18	7 @ 7¼	8

*Quotations represent No. 1 new cure.

GREEN AMERICAN BELLIES

18-20	6½@ 6¾
20-25	6½@ 6¾

D. S. BELLIES

	Clear	Rib
16-18	6⅝n	....
18-20	6¼	....
20-25	6¼	6¼
25-30	6¼	6¼
30-35	6¼	6¼
35-40	6⅛	6⅛
40-50	6	6

D. S. FAT BACKS

6- 8	4¾
8-10	5
10-12	5¼
12-14	5⅜
14-16	5⅜
16-18	5⅜
18-20	6⅛
20-25	6⅛

OTHER D. S. MEATS

Regular plates 6-8	5
Clear plates 4-6	4½
D. S. jowl butts	4¼
S. P. jowls	4½
Green square jowls	4¾
Green rough jowls	4⅝@ 4½

CHICAGO LARD PRICES

Prices of cash, loose and leaf lard on the Chicago Board of Trade:

	Cash	Loose	Leaf
Saturday, April 20	6.42½n	5.55n	5.62½n
Monday, April 22	6.45n	5.57½n	5.62½n
Tuesday, April 23	6.50n	5.60n	5.62½b
Wednesday, April 24	6.42½n	5.52½n	5.62½n
Thursday, April 25	6.30n	5.40n	5.50n
Friday, April 26	6.25n	5.45n	5.50n

Packers' Wholesale Prices

Refined lard, tierces, f.o.b. Chgo	7.50
Kettle rend., tierces, f.o.b. Chgo	8.50
Leaf, kettle rend., tierces, f.o.b. Chgo	8.50
Neutral, tierces, f.o.b. Chicago	8.25
Shortening, tierces, c.a.f.	9.75

FUTURE PRICES

SATURDAY, APRIL 20, 1940

	Open	High	Low	Close
LARD—				
May	6.50	6.50	6.42½	6.42½b
July	6.60	6.72½	6.60	6.65ax
Sept.	6.82½	6.92½	6.82½	6.85
Oct.	6.92½	7.02½	6.92½	6.95ax

Sales: May, 11; July, 24; Sept., 70; Oct., 35; total, 140 sales.

Open interest: May, 674; July, 995; Sept., 1,524; Oct., 417; total, 3,610 lots.

CLEAR BELLIES:

May	6.07½	...	...	6.07½b
July	6.87½	6.87½	6.80	6.80ax

MONDAY, APRIL 22, 1940

LARD—				
May	6.50-52½	6.55	6.45	6.45b
July	6.75	6.80	6.67½	6.67½ax
Sept.	6.95	6.97½	6.87½	6.87½
Oct.	7.02½-07½	7.07½	6.97½	6.97½ax

Sales: May, 41; July, 38; Sept., 89; Oct., 59; total, 222 sales.

Open interest: May, 638; July, 904; Sept., 1,540; Oct., 457; total, 3,629 lots.

CLEAR BELLIES—

May	...	...	...	6.12½b
July	6.97½	7.07½	6.95	6.95ax
Cash Clear Bellies 20/25 av				6.25n

TUESDAY, APRIL 23, 1940

LARD—				
May	6.45	6.50	6.45	6.50ax
July	6.67½	6.72½	6.67½	6.70ax
Sept.	6.87½	6.92½	6.87½	6.90b
Oct.	6.97½	7.02½	6.97½	7.02½ax

Sales: May, 39; July, 22; Sept., 54; Oct., 25; total, 140 sales.

Open interest: May, 602; July, 1,005; Sept., 1,561; Oct., 478; total, 3,646 lots.

CLEAR BELLIES—

May	6.12½	...	...	6.12½
July	7.00	7.12½	7.00	7.00
Sept.	7.50	...	...	7.50

WEDNESDAY, APRIL 24, 1940

LARD—				
May	6.52½	6.52½	6.42½	6.42½ax
July	6.75-72½	6.75	6.62½	6.62½b
Sept.	6.92½-95	6.95	6.82½	6.82½b
Oct.	7.05	7.05	6.95	6.95ax

Sales: May, 34; July, 20; Sept., 85; Oct., 30; total, 169 sales.

Open interest: May, 576; July, 1,005; Sept., 1,584; Oct., 500; total, 3,665 lots.

CLEAR BELLIES—

May	6.05	6.05	6.02½	6.02½
July	7.05	7.05	6.85	6.85ax
Sept.	7.50	...	...	7.50ax

THURSDAY, APRIL 25, 1940

LARD—				
May	6.35-32½	6.35	6.27½	6.27½b
July	6.55	6.55	6.47½	6.50ax
Sept.	6.77½-75	6.77½	6.67½	6.70b
Oct.	6.87½	6.87½	6.77½	6.80

Sales: May, 26; July, 45; Sept., 75; Oct., 36; total, 182 sales.

Open interest: May, 555; July, 1,011; Sept., 1,615; Oct., 518; total, 3,699 lots.

CLEAR BELLIES—

May	5.95	...	...	5.95
July	6.80	6.80	6.65	6.65ax
Sept.	...	...	...	7.35ax

FRIDAY, APRIL 26, 1940

LARD—				
May	6.25-22½	6.25	6.22½	6.22½b
July	6.47½	6.47½	6.42½	6.45ax
Sept.	6.67½	6.67½	6.62½	6.65b
Oct.	6.75	6.77½	6.72½	6.75
Dec.	6.90	.....	.....	6.90

CLEAR BELLIES—

May	.....	.....	.....	5.92½ax
July	.....	.....	.....	6.60ax
Sept.	7.30	.....	.....	7.30ax

CHICAGO PROV. SHIPMENTS

Provision shipments from Chicago for week ended April 20, 1940, were:

	Week Apr. 20	Previous week	Same week '39
Cured meats, lbs.	17,065,000	13,619,000	13,244,000
Fresh meats, lbs.	58,248,000	52,202,000	41,061,000
Lard, lbs.	5,982,000	2,554,000	2,385,000

Provisions and Lard

PRICES of most green and cured product advanced in the carlot market this week and fresh pork prices were higher with hogs; lard failed to show much strength, however, after the bad reaction last weekend.

LARD.—The Chicago futures market on Saturday and Monday recovered part of the ground lost last Friday. There was heavy speculative buying on Monday; offerings were mostly in realizing as trade selling was reduced. Late profit taking by longs cut the day's net gains to 2½ points. Lard prices held firm Tuesday with the advance in hogs.

Values were easier at midweek as grain and cottonseed oil weakened and hogs failed to hold an early advance. There was hedge selling by warehouse interests and scattered realizing. Lard prices worked lower Thursday on the decline in hogs; there was liquidation in May and July by longs and warehousemen sold the deferred months. The setback attracted scattered buying and Thursday's close was 5 to 7½ points under the preceding Friday.

New York prices were firm. Prime western was quoted at 6.95@7.05c; middle western, 6.85@6.95c; New York City in tierces, 6½@6⅝c, tubs, 6⅝@6¾c; refined continent, 6⅞@7¼c; South America, 7@7¼c; Brazil kegs, 7⅜@7½c, and shortening in carlots, 9¼c, smaller lots, 9½c.

CARLOT TRADING.—Both green and cured product made good gains in the Chicago carlot market this week as hog prices advanced and receipts dwindled. Interest in green regular hams increased and S. P. regulars were more firmly held; the green were up ½@⅝c and the cured made similar gains. There was fair trade in green skinned hams; demand was brisk at times and prices were ⅝@¾c higher. Green picnics were rather quiet but firm with the lights advancing ¼c.

Market for green seedless bellies turned active around midweek and scored gains of ¼@½c; cured bellies also advanced. D. S. bellies were somewhat mixed and registered small losses on Thursday after holding steady to higher early in the period; Thursday's prices on light and medium were about ⅛c under last Friday. There was more interest in fat backs and prices were firmer, showing gains of ¼@⅜c.

FRESH PORK.—The Chicago fresh pork market reflected the rise in hog prices and the light volume of cutting; good advances were made up to midweek. Light loins were 1¼c higher than last Friday with the 8/10 at 17¾c and the heavies up 1½@2c. Boston butts were scarce and in good demand and the 4/6 advanced 1½c to 13¼c. Skinned shoulders were 1c higher. There was very brisk demand for fresh regular pork trimmings and Thursday's quotation was 8½@9c against 7@7¼c last Friday. Both blade and cheek meat advanced 1@1½c.

MEAT AND SUPPLIES PRICES

Chicago

WHOLESALE FRESH MEATS

Carcass Beef

	Week ended April 24, 1940 per lb.	Cor. week, 1939 per lb.
Prime native steers—		
400- 600	18¼@18¾	19½@20
600- 800	18 @18½	19½@20
800-1000	18 @18½	20 @20½
Good native steers—		
400- 600	17¼@18	17 @17½
600- 800	16¾@17½	16½@17½
800-1000	16¾@17½	17 @17½
Medium steers—		
400- 600	16½@17	15 @15½
600- 800	16 @16¾	15 @15½
800-1000	16 @16¾	15¼@16½
Heifers, good, 400-600	16 @16¾	16½@17½
Cows, 400-600	16¾@17¼	12½@14¼
Hind quarters, choice	22 @23	24
Fore quarters, choice	14 @14½	15½

Beef Cuts

Steer loins, prime	unquoted	unquoted
Steer loins, No. 1	32	33
Steer loins, No. 2	28	29
Steer short loins, prime	unquoted	unquoted
Steer short loins, No. 1	40	41
Steer short loins, No. 2	33	35
Steer loin ends, (hips)	26	26
Steer loin ends, No. 2	25	24
Cow loins	19	19
Cow short loins	23	20
Cow loin ends (hips)	18	18
Steer ribs, prime	unquoted	unquoted
Steer ribs, No. 1	21	24
Steer ribs, No. 2	20	21
Cow ribs, No. 2	14	14
Cow ribs, No. 3	12½	13
Steer rounds, prime	unquoted	unquoted
Steer rounds, No. 1	17½	17½
Steer rounds, No. 2	17¼	17
Steer chucks, prime	unquoted	unquoted
Steer chucks, No. 1	13¾	13½
Steer chucks, No. 2	13½	12½
Cow rounds	15	14
Cow chucks	12	12
Steer plates	8	11⅝
Medium plates	7½	9½
Briskets, No. 1	13	16½
Cow navel ends	7½	8½
Steer navel ends	6	8
Fore shanks	9	10
Hind shanks	7	7½
Strip loins, No. 1 bnls	55	60
Strip loins, No. 2	40	50
Sirloin butts, No. 1	28	30
Sirloin butts, No. 2	22	22
Beef tenderloins, No. 1	65	55
Beef tenderloins, No. 2	60	50
Rump butts	15	16
Flank steaks	21	21
Shoulder clods	16	17½
Hanging tenderloins	17	17
Insides, green, 6@8 lbs	17	18
Outsides, green, 5@6 lbs	15½	17
Knuckles, green, 5@6 lbs	16½	18

Beef Products

Brains	6	7
Hearts	8	10
Tongues	18	20
Sweetbreads	17	17
Ox-tail	10	12
Fresh tripe, plain	10	10
Fresh tripe, H. C.	11½	11½
Livers	20	20
Kidneys	9	10

Veal

Choice carcass	16 @17	16 @17
Good carcass	15 @16	14 @15
Good saddles	19 @20	20 @21
Good racks	13	13 @14
Medium racks	10 @11	10

Veal Products

Brains, each	10	10
Sweetbreads	32	36
Calf livers	45	55

Lamb

Choice lambs	20	20
Medium lambs	18	19
Choice saddles	24	23
Medium saddles	23	22
Choice fores	16	17
Medium fores	15	16
Lamb fries	32	32
Lamb tongues	17	17
Lamb kidneys	15	21

Mutton

Heavy sheep	10	10
Light sheep	14	12
Heavy saddles	13	14
Light saddles	8	16
Heavy fores	7	8
Light fores	10	9
Mutton legs	20	16
Mutton loins	5	12
Mutton stew	9	7
Sheep tongues	10	13½
Sheep heads, each	11	11

Fresh Pork and Pork Products

Pork loins, 8-10 lbs. av	18½	18
Picnics	11	13
Skinned shoulders	12	13
Tenderloins	32	32
Spare ribs	11	11
Back fat	6	7
Boston butts	13½	14
Boneless butts, cellar trim, 2@4	17	18
Hocks	9	10
Tails	5	10
Neck bones	4	4
Slip bones	9	11
Blade bones	9	11
Pigs' feet	4	4
Kidneys, per lb	6	10
Livers	8	10
Brains	7	9
Ears	4	4
Snouts	4	5
Heads	6	6½
Chitterlings	7½	6½

WHOLESALE SMOKED MEATS

Fancy regular hams, 14@16 lbs., parchment paper	16	@16¾
Fancy skinned hams, 14@16 lbs., parchment paper	17	@18
Standard reg. hams, 14@16 lbs., plain	15	@15¾
Picnics, 4@8 lbs., short shank, plain	13	@14
Picnics, 4@8 lbs., long shank, plain	11	@12
Fancy bacon, 6@8 lbs., plain	15	@17
Standard bacon, 6@8 lbs., plain	12½	@13½
No. 1 beef sets, smoked		
Insides, 8@12 lbs.	34½	@35½
Outsides, 5@9 lbs	33	@34
Knuckles, 5@9 lbs	32	@33
Cooked hams, choice, skin on, fatted	26	
Cooked hams, choice, skinless, fatted	29½	
Cooked picnics, skin on, fatted	22	
Cooked picnics, skinned, fatted	22	

VINEGAR PICKLED PRODUCTS

Pork feet, 200-lb. bbl	$15.75
Lamb tongue, short cut, 200-lb. bbl	65.00
Regular tripe, 200-lb. bbl	17.25
Honeycomb tripe, 200-lb bbl	22.25
Pocket honeycomb tripe, 200-lb. bbl	26.00

BARRELED PORK AND BEEF

Clear fat back pork:	
70- 80 pieces	$11.50
80-100 pieces	10.50
100-125 pieces	10.00
Clear plate pork, 25-35 pieces	12.00
Bean pork	12.00n
Brisket pork	17.00n
Plate beef	15.00
Extra plate beef	16.00

SAUSAGE MATERIALS

(Packed basis.)

Regular pork trimmings	8½@ 9
Special lean pork trimmings 85%	11¾@12¼
Extra lean pork trimmings 95%	14½
Pork cheek meat (trimmed)	11
Pork hearts	7½
Pork livers	7
Native boneless bull meat (heavy)	14½
Boneless chucks	13½
Shank meat	12
Beef trimmings	10½
Beef cheeks (trimmed)	8
Dressed canners, 350 lbs. and up	10
Dressed canner cows, 400-450-lb.	10¾
Dr. bologna bulls, 600 lbs. and up	10¾
Pork tongues, canner trim, fresh	6

DOMESTIC SAUSAGE

(Quotations cover fancy grades.)

Pork sausage, in 1-lb. carton	21¼
Country style sausage, fresh in link	16¼
Country style sausage, fresh in bulk	14¼
Country style sausage, smoked	20½
Frankfurters, in sheep casings	23
Frankfurters, in hog casings	21¼
Bologna in beef bungs, choice	16½
Bologna in beef middles, choice	17
Liver sausage in beef rounds	14
Liver sausage in hog bungs	16
Smoked liver sausage in hog bungs	21
Head cheese	14½
New England luncheon specialty	20½
Minced luncheon specialty, choice	18½
Tongue & blood	17
Blood sausage	17
Souse	16
Polish sausage	21

DRY SAUSAGE

Cervelat, choice, in hog bungs	34
Thuringer	19
Farmer	26
Holsteiner	26
B. C. salami, choice	30
Milano, salami, choice in hog bungs	29
B. C. salami, new condition	17
Frisses, choice, in hog middles	29
Genoa style salami, choice	36
Pepperoni	26
Mortadella, new condition	18
Capicola	36
Italian style hams	28
Virginia hams	40½

CURING MATERIALS

	Cwt.
Nitrite of soda (Chgo. w'hse stock). In 425-lb. bbls., delivered	$ 8.75
Saltpeter, less than ton lots:	
Dbl. refined granulated	7.50
Small crystals	8.50
Medium crystals	8.75
Large crystals	9.50
Dbl. rfd. gran. nitrate of soda	2.90
Salt, per ton, in minimum car of 80,000 lbs. only, f.o.b. Chicago, per ton:	
Granulated	7.20
Medium, dried	10.20
Rock	6.80
Sugar—	
Raw, 96 basis, f.o.b. New Orleans	2.88
Standard gran., f.o.b. refiners (2%)	4.50
Packers' curing sugar, 250 lb. bags, f.o.b. Reserve, La., less 2%	4.10
Dextrose, in car lots, per cwt. (Cotton)	3.64
In paper bags	3.59

SAUSAGE CASINGS

(F. O. B. Chicago.)

(Prices quoted to manufacturers of sausage.)

Beef casings:	
Domestic rounds, 180 pack	.16
Domestic rounds, 140 pack	.33
Export rounds, wide	.42
Export rounds, medium	.24
Export rounds, narrow	.39
No. 1 weasands	.06
No. 2 weasands	.03
No. 1 bungs	.12
No. 2 bungs	.08
Middles, regular	.50
Middles, select, wide, 2@2¼ in.	.55
Middles, select, extra, 2¼ in. & up	.75
Dried bladders:	
12-15 in. wide, flat	.85
10-12 in. wide, flat	.70
8-10 in. wide, flat	.35
6- 8 in. wide, flat	.25
Pork casings:	
Narrow, per 100 yds	2.05
Narrow, special, per 100 yds	1.90
Medium, regular	1.50
English, medium	1.40
Wide, per 100 yds	1.30
Extra wide, per 100 yds	.90
Export bungs	.18
Large prime bungs	.13
Medium prime bungs	.07
Small prime bungs	.03½
Middles, per set	.14

SPICES

(Basis Chicago, original bbls., bags or bales.)

	Whole.	Ground.
Allspice, prime	21½	23
Resifted	22½	24½
Chili pepper		23
Powder		23
Cloves, Amboyna	28½	34½
Zanzibar	18	23
Ginger, Jamaica	14	18½
African	9½	13¼
Mace, Fancy Banda	62	70
East India	57	65
East & West India Blend		59
Mustard flour, fancy		25
No. 1		19
Nutmeg, fancy Banda	24	29
East India	20	24½
East & West India Blend		20
Paprika, Spanish		44
Fancy Hungarian		38
No. 1 Hungarian		35½
Pepper, Cayenne		41
Red No. 1		21
Black Malabar	10	14
Black Lampong	6	7½
Pepper, white Singapore	9½	12¾
Muntok	9½	13
Packers		12

SEEDS AND HERBS

	Whole.	Ground for Sauc.
Caraway seed	16	21
Celery seed, French	24	28
Cominos seed	19½	24½
Coriander Morocco bleached	7	....
Coriander Morocco natural No. 1	6½	8½
Mustard seed fancy yellow	21	....
American	14	....
Marjoram, French	28	34
Oregano	12	16
Sage fancy Dalmatian	12½	16½
Dalmatian No. 1	11½	15½

(Continued on page 30)

PURE VINEGARS

A. P. CALLAHAN & COMPANY

2407 SOUTH LA SALLE STREET

CHICAGO, ILL.

MARKET PRICES

New York

DRESSED BEEF

City Dressed

Choice, native, heavy	18½@19½
Choice, native, light	18 @19
Native, common to fair	16½@17½

Western Dressed Beef

Native steers, 600@800 lbs.	18 @19
Native choice yearlings, 440@600 lbs.	17 @18
Good to choice heifers	16 @17
Good to choice cows	14 @15
Common to fair cows	13 @14
Fresh bologna bulls	13 @14

BEEF CUTS

	Western	City.
No. 1 ribs	23 @24	22 @24
No. 2 ribs	20 @21	21 @22
No. 3 ribs	@19	19 @20
No. 1 loins	32 @36	36 @40
No. 2 loins	26 @32	30 @35
No. 3 loins	20 @24	25 @29
No. 1 hinds and ribs	20 @21	21 @24
No. 2 hinds and ribs	18 @19	19 @21
No. 1 rounds	@17	@17
No. 2 rounds	@16	@16
No. 3 rounds	@15	@15
No. 1 chucks	@15	@15
No. 2 chucks	@14	@14
No. 3 chucks	@13	@13
City dressed bolognas	13½@14½	
Rolls, reg. 4@6 lbs. av.	18 @20	
Rolls, reg. 6@8 lbs. av.	23 @25	
Tenderloins, 4@6 lbs. av.	50 @60	
Tenderloins, 5@0 lbs. av.	50 @60	
Shoulder clods	16 @18	

DRESSED VEAL

Good	16 @18
Medium	15 @16
Common	14 @15

DRESSED SHEEP AND LAMBS

Genuine spring lambs, good	22 @23
Genuine spring lambs, good to medium	21 @22
Genuine spring lambs, medium	20 @21
Winter lambs, good	20 @21
Winter lambs, good and medium	19½@20
Winter lambs, medium	19 @19½
Sheep, good	12 @14
Sheep, medium	10 @12

DRESSED HOGS

Hogs, good and choice (110-140 lbs.) head on; leaf fat in	$ 9.25@ 9.75
Pigs, small lots (60-110 lbs.) head on; leaf fat in	10.50@11.50

FRESH PORK CUTS

Pork loins, fresh, Western 10@12 lbs.	18 @18½
Shoulders, Western, 10@12 lbs. av.	11 @11½
Butts, regular, Western	13 @13½
Hams, Western, fresh, 10@12 lbs. av.	15 @16
Picnics, Western, fresh, 6@8 lbs. av.	11 @12
Pork trimmings, extra lean	15 @16
Pork trimmings, regular, 50% lean	9 @10
Spareribs	9 @10

COOKED HAMS

Cooked hams, choice, skin on, fatted	33c
Cooked hams, choice, skinless, fatted	35c

SMOKED MEATS

Regular hams, 8@10 lbs. av.	18 @19
Regular hams, 10@12 lbs. av.	18 @19
Regular hams, 12@14 lbs. av.	17 @18
Skinned hams, 10@12 lbs. av.	18½@19½
Skinned hams, 12@14 lbs. av.	18 @19
Skinned hams, 14@18 lbs. av.	17 @18
Skinned hams, 18@20 lbs. av.	17 @18
Picnics, 4@6 lbs. av.	12½@13½
Picnics, 6@8 lbs. av.	12 @13
City pickled bellies, 8@12 lbs. av.	14 @15
Bacon, boneless, Western	16½@17½
Bacon, boneless, city	15½@16½
Rollettes, 8@10 lbs. av.	16 @17
Beef tongue, light	22 @23
Beef tongue, heavy	23 @24

FANCY MEATS

Fresh steer tongues, untrimmed	16c a pound
Fresh steer tongues, l. c. trimmed	28c a pound
Sweetbreads, beef	30c a pound
Sweetbreads, veal	70c a pair
Beef kidneys	12c a pound
Mutton kidneys	4c each
Livers, beef	29c a pound
Oxtails	16c a pound
Beef hanging tenders	30c a pound
Lamb fries	12c a pair

BUTCHERS' FAT

Shop Fat	$1.25 per cwt.
Breast Fat	1.75 per cwt.
Edible Suet	2.75 per cwt.
Inedible Suet	2.25 per cwt.

GREEN CALFSKINS

	5-9	9½-12½	12½-14	14-18	18 up
Prime No. 1 veals	22	3.10	3.60	3.65	4.10
Prime No. 2 veals	20	2.80	3.30	3.35	3.70
Buttermilk No. 1	17	2.60	3.10	3.15	...
Buttermilk No. 2	16	2.45	2.95	3.00	...
Branded grubby	11	1.25	1.60	1.65	1.85
Number 3	11	1.25	1.60	1.65	1.85

WHOLESALE DRESSED MEAT PRICES

Wholesale prices of Western dressed meats, quoted by the U. S. Department of Agriculture, Agricultural Marketing Service, on April 24, 1940:

	CHICAGO	BOSTON	NEW YORK	PHILA.
Fresh Beef:				
STEER, Choice[1]:				
400-500 lbs.	$16.50@17.50	.....	.....	.....
500-600 lbs.	16.50@17.50	.....	$17.50@18.50	$18.00@19.00
600-700 lbs.	16.00@17.50	$17.00@18.00	17.00@18.50	18.00@19.00
700-800 lbs.	16.00@17.50	17.00@18.00	17.00@18.00	17.50@18.50
STEER, Good[1]:				
400-500 lbs.	14.50@16.50	.....	.....	.....
500-600 lbs.	14.50@16.50	.....	16.00@17.50	16.00@17.50
600-700 lbs.	14.00@16.00	15.50@17.00	15.50@17.00	16.00@17.50
700-800 lbs.	14.00@16.00	15.50@17.00	15.00@17.00	16.00@17.50
STEER, Commercial[1]:				
400-600 lbs.	13.50@14.50	.....	14.00@16.00	14.00@15.50
600-700 lbs.	13.00@14.00	14.50@15.50	14.00@15.50	14.00@15.50
STEER, Utility[1]:				
400-600 lbs.	12.50@13.50	.....	.....	.....
COW (all weights):				
Commercial	12.50@13.50	.....	.....	.....
Utility	11.50@12.50	13.00@14.00	12.50@13.50	13.00@13.50
Cutter	11.00@11.50	12.00@13.00	11.50@12.50	12.00@13.00
Canner	10.50@11.00	.....	.....	.....
Fresh Veal and Calf:				
VEAL (all weights)[2]:				
Choice	15.50@16.50	16.50@18.00	16.50@17.50	17.00@18.50
Good	14.00@15.50	14.00@16.50	14.00@16.50	15.50@17.00
Medium	12.50@14.00	12.00@14.00	12.00@14.00	14.00@15.50
Common	11.00@12.50	10.50@12.00	10.50@12.00	12.00@14.00
CALF (all weights)[2 3]:				
Choice	.....	.....	.....	.....
Good	.....	.....	.....	.....
Medium	.....	.....	.....	.....
Common	.....	.....	.....	.....
Fresh Lamb and Mutton:				
SPRING LAMB (all weights):				
Choice	.....	.....	20.00@23.00	.....
Good	.....	.....	19.00@22.00	.....
Medium	.....	.....	18.00@20.00	.....
Common	.....	.....	.....	.....
LAMB, Choice:				
38 lbs. down	19.00@20.00	20.50@21.50	20.00@21.00	20.00@21.00
39-45 lbs.	18.50@19.50	19.50@20.50	19.00@20.00	19.50@20.50
46-55 lbs.	17.50@18.50	18.50@19.50	18.00@19.00	19.00@20.00
LAMB, Good:				
38 lbs. down	18.00@19.00	19.50@20.50	19.50@20.00	19.00@20.00
39-45 lbs.	17.50@18.50	18.50@19.50	18.50@19.50	18.50@19.50
46-55 lbs.	16.50@17.50	17.50@18.50	17.50@18.50	18.00@19.00
LAMB, Medium:				
All weights	15.50@17.50	17.00@19.00	17.00@18.50	18.00@19.00
LAMB, Common:				
All weights	14.50@15.50	16.50@17.50	15.50@17.50	.....
MUTTON (Ewe), 70 lbs. down:				
Good	9.00@10.00	.....	11.00@12.00	.....
Medium	8.00@ 9.00	.....	10.00@11.00	.....
Common	7.00@ 8.00	.....	9.00@10.00	.....
Fresh Pork Cuts:				
LOINS:				
8-10 lbs.	17.50@18.50	18.00@19.00	17.00@18.00	17.00@18.50
10-12 lbs.	17.50@18.50	18.00@19.00	17.00@18.00	17.00@18.00
12-15 lbs.	16.50@17.00	17.00@18.00	16.50@17.00	16.00@17.00
16-22 lbs.	14.00@15.00	.....	.....	14.50@16.00
SHOULDERS, Skinned, N. Y. Style:				
8-12 lbs.	10.00@10.50	.....	11.00@11.50	10.50@11.00
PICNICS:				
6- 8 lbs	9.50@10.00	11.00@11.50	.....	.....
BUTTS, Boston Style:				
4- 8 lbs.	12.00@13.00	.....	12.50@13.50	12.00@13.00
SPARE RIBS:				
Half Sheets	9.50@11.00	.....	.....	.....
TRIMMINGS:				
Regular	8.00@ 8.50	.....	.....	.....

[1]Includes heifer 300-450 lbs. and steer down to 300 lbs. at Chicago. [2]Includes sides at Boston and Philadelphia. [3]"Skin on" at New York and Chicago.

PACKER SALES RISE

For the first time since last October, sales in the meat packing industry came nearly in balance with current production, as they moved to higher levels in March, the Federal Reserve Bank of Chicago reported this week. Slaughter in both March and April continued substantially ahead of the corresponding volumes last year.

Shipments of packinghouse products for export were in small volume during March with only negligible quantities moving to the United Kingdom and with European neutrals buying even more sparingly than in February. Furthermore, shipments to Canada were below the quota allowable. A small volume of war orders moved to the Allies. Trade with Puerto Rico, Cuba, and other Latin American countries was somewhat better than in February, though continuing only sufficient for consumption requirements. A few sales were made to the United Kingdom, but actual shipment awaited the granting of import licenses.

Easiness Develops in Tallow and Greases on Slow Trading

Weakness of lard a depressing factor; buyers firmly resist raising ideas—Soapers confronted by uncertain freight situation on imported oils—By-products show steadiness.

TALLOW.—A firm tone but no important business was apparent in tallow at New York the past week, due to the fact that buyers and sellers were apart in their ideas. Some small business passed at the 5c level for New York extra, unchanged from previous sales, and soapers were bidding 5c without getting any particular quantity. Producers' ideas were firm at 5¼c, thanks to a well sold up position and firmness in lard and some of the other competing products. However, soapers were not inclined to come up further in their prices at this time, pointing out that palm oil in bulk for shipment was on an attractive basis and at a price likely to halt any immediate further advances in tallow. In connection with imported oils, soapers are still confronted with an uncertain freight situation and a tendency toward freight rate advances.

Buying interest was in the tallow market at 5c for late May and early June, but without attracting sellers. It was apparent that a great deal depended upon developments in lard.

At New York, edible was quoted at 5⅜c nominal; extra, 5@5¼c delivered and special, 4⅞c.

The tallow market at Chicago turned a little easier this week after a weaker trend developed in lard and as buyers displayed a determined tendency not to raise their ideas to conform with those of producers. The week was marked by comparatively light offerings and a relatively small volume of trading. Toward the end of the week, large consumers showed principal interest for June delivery at 5c, Chicago and Cincinnati, for prime tallow. Couple tanks No. 1 tallow sold Thursday at 4⅝c, Chicago. Earlier in week, 4⅞c was bid at Chicago for special tallow, with 5c asked. Edible tallow last sold at 5c, f.o.b. shipping point. Tank of off-prime sold Monday at 5c, Chicago. On Thursday, tallow quotations at Chicago were:

Edible tallow	5 @ 5¼
Fancy tallow	5
Prime packers	5
Special tallow	4¾@ 4¾
No. 1 tallow	4⅝

STEARINE.—The market was steadier at New York, with some business reported to have passed at 6¼c delivered at dock to go south, equal to 6⅛c plant.

At Chicago demand was moderate but the market steadier. Prime oleo was quoted at 5¾@6c.

OLEO OIL.—Demand was slightly better at New York and the market a shade firmer. Extra was quoted at 7@7¼c; prime, 6¾@7c and lower grades, 6⅝@6⅝c.

At Chicago, the market was steady with demand moderate. Extra was quoted at 7c.

LARD OIL.—Demand was fair and the market firmer at New York, aided by strength in raw materials. Extra was quoted at 8⅝c; No. 1, 8¼c; No. 2, 8c; extra No. 1, 8½c; winter strained, 8¾c; prime burning, 9½c, and prime inedible, 9c.

Lard oil quotations at Chicago were as follows: No. 1, 7¾c; No. 2, 7½c; extra, 8⅛c; extra No. 1, 8c; extra winter strained, 8¼c; special No. 1, 7⅝c; prime burning, 9c; and prime inedible, 8½c. Acidless tallow oil was quoted at 7¾c.

(See page 34 for later markets.)

NEATSFOOT OIL.—Demand was slow and the market irregular at New York. Cold test was quoted at 17c; extra, 8½c; No. 1, 8¼c; prime, 8¾c, and pure, 12¾c.

Neatsfoot oil quotations at Chicago were: Cold test, 17c; extra, 8c; No. 1, 7¾c; prime, 8¼c; and pure, 12c.

GREASES.—A moderate trade and a steady tone featured the market for greases at New York this week, with buyers and sellers slightly apart in their ideas. Sellers were not pressing offerings, still being in a comfortably sold up position. However, soapers were watching tallow, lard and competing oils, as well as European war developments. Indications were that quite a little greases could be moved into consuming channels at around 4⅝c for yellow and house, but while there were small offerings ⅛c above that level, most producers were not offering to any extent, anticipating still better levels.

At New York, choice white was 5c asked, yellow and house, 4⅝@4¾c and brown, 4⅜@4½c.

A weakening tendency developed in the Chicago grease market this week after lard failed to hold gains. Offerings were only moderate and trading limited by the failure of buyers and sellers to get together in their ideas. After being offered at midweek at 5c, last trading price, with no takers, white grease sold Thursday at 4⅞c, Cincinnati, prompt; large consumer interest was mainly for white grease at 4⅞c, Cincinnati. A tank of yellow grease sold late in week at 4½c, Chicago, and offerings were more liberal at 4⅝c, at which price a tank or two sold on Wednesday at Chicago. Grease quotations on Thursday at Chicago were:

Choice white grease	4⅞
A-white grease	4¾
B-white grease	4⅝
Yellow grease, 10-15 f.f.a.	4½@ 4⅝
Yellow grease, 16-20 f.f.a.	4½
Brown grease	4⅜

BY-PRODUCTS MARKETS

Chicago, April 25, 1940.

By-products steady to stronger throughout list on moderate trading. Indications of relative stability at around present levels.

Blood

Blood nominally quoted in range shown, which indicates buyers' and sellers' ideas.

	Unit Ammonia
Unground	$2.90@3.00

Digester Feed Tankage Materials

Last sales of 11-12% tankage reported at $3.25; market stronger than last week.

Unground, 11 to 12% ammonia	$ @3.25
Unground, 6 to 10%, choice quality	3.35@3.50
Liquid stick	1.50@1.60

Packinghouse Feeds

This market reported strong at adjusted prices established a week ago. Supplies fairly adequate.

	Carlots, Per ton
60% digester tankage	$50.00
50% meat and bone scraps	50.00
Blood-meal	65.00
Special steam bone-meal	50.00

Bone Meals (Fertilizer Grades)

Some sales of bone meals reported at $32.00; market slightly firmer.

	Per ton
Steam, ground, 3 & 50	$32.00
Steam, ground, 2 & 26	32.00

Fertilizer Materials

This market stronger; quotation represents price being asked. Largely nominal.

	Per ton
High grd. tankage, ground, 10@11% am.	$ 2.75 & 10c
Bone tankage, ungrd., per ton	20.00@22.00
Hoof meal	2.35@ 2.50

Dry Rendered Tankage

Scattered trading of cracklings reported at last week's levels.

	Per ton
Hard pressed and expeller unground, up to 48% protein (low test)	$ .75
above 48% protein (high test)	.72½
Soft prsd. pork, ac. grease and quality, ton	47.50@50.00
Soft prsd. beef, ac. grease and quality, ton	40.00@42.50

Gelatine and Glue Stocks

Gelatine and glue stocks quiet and firm.

	Per ton
Calf trimmings	$ 20.00
Sinews, pizzles	18.00
Cattle jaws, skulls and knuckles	35.00
Hide trimmings	13.00@14.00
Pig skin scraps and trim, per lb., l.c.l.	3½@ 3¾

Bones and Hoofs

Market steady and unchanged.

	Per ton
Round shins, heavy	$ 57.50
light	52.50
Flat shins, heavy	47.50
light	42.50
Blades, buttocks, shoulders & thighs	42.50
Hoofs, white	35.00
House run, unassorted	30.00
Junk bones	22.50@25.00

Animal Hair

No changes in animal hair market.

Winter coil dried, per ton	$30.00@35.00
Summer coil dried, per ton	22.50@25.00
Winter processed, black, lb.	6½@ 7c
Winter processed, gray, lb.	3½@ 6c
Summer processed, gray, lb.	3 @ 3½c
Cattle switches	2¼@3c

FERTILIZER PRICES

BASIS NEW YORK DELIVERY

Ammoniates

Ammonium sulphate, bulk, per ton, basis ex-vessel Atlantic ports, May to June, 1940	$28.00
Blood, dried, 16% per unit	2.85
Unground fish scrap, dried, 11½% ammonia, 16% B. P. L., f.o.b. fish factory	3.25 & 10c
Fish meal, foreign, 11½% ammonia, 10% B. P. L., c.i.f. spot	53.50
May shipment	53.00
Fish scrap, acidulated, 7% ammonia, 3% A. P. A., f.o.b. fish factories	2.50 & 50c
Soda nitrate, per net ton: bulk, May to June, 1940, inclusive, ex-vessel Atlantic and Gulf ports	27.00
in 200-lb. bags	28.30
in 100-lb. bags	29.00
Fertilizer tankage, ground, 10% ammonia, 10% B. P. L. bulk	2.75 & 10c
Feeding tankage, unground, 10-12% ammonia, 15% B. P. L. bulk	2.85 & 10c

Phosphates

Foreign bone meal, steamed, 3 and 50 bags, per ton, c.i.f.	$32.50
Bone meal, raw, 4½% and 50%, in bags, per ton, c.i.f.	31.50
Superphosphate, bulk, f.o.b. Baltimore, per ton, 16% flat	8.50

Dry Rendered Tankage

50/55% protein, unground	75c
60% protein, unground	75c

EASTERN FERTILIZER MARKETS

New York, April 24, 1940.

The markets were active the past week and most materials showed an advancing tendency. Cracklings were firm and sold at 75c per unit, f.o.b. New York, and some outside material sold as high as 80c per unit. There was brisk trading in South American cracklings and sales were made around 76c to 78c per unit c.i.f.

Several cars of dried blood were sold at New York at $2.85 and additional material was offered at this figure. Sales of feeding tankage have been made at $2.85 per unit, f.o.b. Eastern shipping points and some producers are holding at $3.00.

COTTONSEED PRODUCTS EXPORTS AND IMPORTS

Exports and imports of cottonseed products for seven months ending Feb. 29:

	1940	1939
Exports:		
Oil, crude, lbs.	4,459,287	102,750
Oil, refined, lbs.	8,692,288	2,193,521
Cake and meal, tons	6,431	13,972
Linters, bales	211,826	135,257
Imports:		
Oil, crude,* lbs.	none	714,800
Oil, refined,* lbs.	9,723,721	46,063,762
Cake and meal, tons	4,174	3,267
Linters, bales	40,606	27,328

*Quantities for March not included above are 110,113 pounds refined, "entered for consumption." No oil was "withdrawn from warehouse for consumption," nor any "entered for warehouse."

WHALE OIL PRODUCTION

Whale oil production during the 1939-40 Norwegian Antarctic season concluded early in March, reached 909,200 barrels (339,433,920 lbs.), a 21 per cent increase over the 721,721 barrels (270,726,400 lbs.) produced in 1938-39. Recent reports state that two-thirds of the Norwegian whale oil production has been sold to the United Kingdom, the balance being reserved for Scandinavia.

Cotton Oil Futures Mark Time in Routine Trading

Speculative element less interested—Cash oil demand quiet—Market influenced by wheat and outside commodities—Coconut oil steady.

COTTONSEED oil futures backed and filled over a modest range at New York this week and showed little or no net change. Trade was on a moderate scale and the market was swayed by developments in allied and other commodity markets. Liquidation in cottonseed oil was apparent on the small upturns, while commission house and professional selling materialized when outside markets showed any weakness. Buying on resting orders limited downturns.

Liquidation was on a fairly extensive scale, however, as indicated by the open interest which on Tuesday night was 2,831 lots, or 137 less than the previous week. May oil liquidation and transferring of May to the later months operated against upturns. However, the trade bought May oil persistently, partly outright and partly against sales of the later positions in the transfer of hedges.

Cash oil demand was disappointingly quiet and this caused uneasiness among longs. On the other hand, the lard market continued to narrow its discount under oil futures. However, the market generally appeared to be marking time in routine trade.

Speculative sentiment was greatly divided, but the speculative element was quick to run from one side to the other. A good part of the professional interest in oil was influenced by gyrations in wheat.

COCONUT OIL.—Steadier trends in copra and some nervousness over shipping facilities combined to make a steady market at New York. Demand was not large. At New York, tanks were quoted at 3 5/16c, while the Pacific coast market was called 3c nominal.

CORN OIL.—Sales were reported from Iowa points at 6¼c, but additional bids failed to attract sellers. At Indianapolis and Battle Creek, the cheapest offerings were 6½c. Chicago was not quoting.

SOYBEAN OIL.—Light business was reported at 5½c at Iowa points and Decatur, but the market at New York was called 5½c nominal. There were intimations that the price might be shaded to 5⅜c on round lots.

PALM OIL.—The market was quiet but steady at New York. Sumatra was quoted at 2¼c in bulk for shipment and Nigre at 3¾c.

OLIVE OIL FOOTS.—Market was quiet and steady at New York. Nearby were quoted 7¾c and forward delivery at 7½c.

PEANUT OIL.—The market was steady with offerings limited. New York market was 6¼@6⅜c.

COTTONSEED OIL.—Valley and Southeast crude were quoted Wednesday at 5⅞@6c nominal; Texas, 5⅞@5¾c nominal at common points, and Dallas, 5¾c nominal.

Futures market transactions for the week at New York were:

FRIDAY, APRIL 19, 1940

	Sales	Range High	Range Low	Closing Bid	Closing Asked
May	60	706	693	693	trad
June	..	...	...	698	nom
July	46	716	702	702	trad
August	..	...	...	706	nom
September	100	723	709	709	710
October	52	724	711	711	trad
November	..	...	...	705	711
December	3	720	718	713	716

Sales 261 contracts.

SATURDAY, APRIL 20, 1940.

May	17	706	696	699	700
June	..	...	...	704	nom
July	7	710	709	707	708
August	..	...	...	711	nom
September	10	716	710	714	715
October	17	719	716	716	trad
November	..	...	...	712	715
December	..	...	...	717	719

Sales 51 contracts.

MONDAY, APRIL 22, 1940

May	41	699	692	695	trad
June	..	...	...	700	nom
July	16	704	700	702	703
August	..	...	...	706	nom
September	48	712	708	710	11tr
October	7	712	709	712	trad
November	..	...	...	706	712
December	1	...	...	714	717

Sales 113 contracts.

TUESDAY, APRIL 23, 1940

May	28	704	695	695	696
June	..	...	...	700	nom
July	24	712	704	704	trad
August	..	...	...	707	nom
September	50	720	711	710	711
October	22	720	711	711	trad
November	..	...	...	700	712
December	..	...	...	715	716

Sales 124 contracts.

WEDNESDAY, APRIL 24, 1940

May	56	700	690	690	trad
June	..	...	...	695	nom
July	7	703	696	698	698
August	..	...	...	700	nom
September	27	712	704	704	705
October	26	710	705	706	trad
November	..	...	...	706	706
December	11	720	720	710	712

Sales 127 contracts.

THURSDAY, APRIL 25, 1940

May	44	689	683	684	nom
July	35	695	687	691	nom
September	63	704	695	699	nom
October	22	704	697	699	nom
December	7	710	703	703	bid

(See page 34 for later markets.)

VEGETABLE OILS

Crude cottonseed oil, in tanks, f.o.b. Valley points, prompt	@6
White deodorized, in bbls., f.o.b. Chgo.	7⅛@7¼
Yellow, deodorized	7⅛@7¼
Soap stock, 50% f.f.a., f.o.b. consuming points	1¾@2
Soybean oil, f.o.b. mills	5½@5¾
Corn oil, in tanks, f.o.b. mills	6¼@6½
Coconut oil, sellers' tanks, f.o.b. coast	2⅝@3
Refined coconut, bbls., f.o.b. Chicago	8½@8¾

OLEOMARGARINE

F. O. B. CHICAGO

White domestic vegetable	15
White animal fat	12
Water churned pastry	12
Milk churned pastry	13
White "nut" type	8½

HIDES AND SKINS

Light trade in packer hides, with heavy hides easy and very light stock strong —Packer calf ¼@½c higher—Kips sell 2@2¼c up.

Chicago

PACKER HIDES.—Only a light scattered trade has been reported so far this week in the packer hide market, totalling a little under 20,000 hides, although occasional quiet sales have undoubtedly been made. Apr. native steers sold down ¼c, Apr. heavy native cows sold steady with last paid price for Mar. take-off, and bulls moved at steady prices. Very light stock shows independent strength; extreme light Texas steers sold at ¾c advance for mostly Apr. take-off.

The strength in light hides is a reflection of the sharp advance paid this week for kipskins, and the present prices being paid for calfskins, resulting in a keen demand for anything suitable for side upper leather, and the probability that the spread between light and heavy hides will widen further.

Prices in table on page 34 are now on basis of April take-off. There various odd lots of Feb.-Mar. take-off still unsold at scattered slow making points and, with a slightly easier tone to the market on heavy hides late this week, these earlier hides may move at a slight discount. However, packers in general are in the most closely sold up position in many years on the old winter hides at this season.

One packer sold 3,000 Apr. native steers at 13c; more available. Another lot of 2,900 Mar.-Apr. extreme light native steers sold at end of last week at 14¾c, steady. Apr. butt branded steers are available at 13c, and Colorados at 12½c, with Mar. quoted ¼c less. Apr. heavy Texas steers are quoted out at 13c; light Texas steers are limited but indicated that some are available at 12½c; extreme light Texas steers moved up sharply on the sale of 2,200 mostly Apr. at 13¾c.

Three packers sold a total of 2,400 Apr. St. Paul heavy native cows at 12¾c. One packer sold 4,000 Mar.-Apr. River point light native cows at 13¾c, about steady basis; heavier average northern points quoted 13½c nom., while very light avge. points are held at 14c. Branded cows are nominal around 13c for northern points and 13¼c for light average southern points.

Three packers sold a total of 4,800 Mar.-Apr. bulls at steady prices of 9½c for native and 8½c for branded bulls.

Withdrawals from Exchange warehouses during the first 23 days of April totalled 15,050 hides, compared with 14,957 for same period in March.

OUTSIDE SMALL PACKER HIDES.—Outside small packer all-weight natives are quoted 12@12½c, selected, Chgo. freight basis, brands ½c less; sales in a scattered way are reported in this range for March take-off, with early Apr. hides included in some instances, according to avge. weight. Some heavy average hides were available at 12c late this week and unsold.

PACIFIC COAST.—The Coast market is understood to be fairly well sold up to end of March. Last trading in March take-off was at 11c, flat, for steers and cows, f.o.b. Los Angeles.

FOREIGN WET SALTED HIDES.—Trade in standard steers was rather quiet in the South American market, following the broad movement previous week at 90 pesos, equal to 13½c, c.i.f. New York. One lot of 6,000 light steers moved this week at 85½ pesos, or 12$^{13}/_{16}$c, a decline of ½c from last week. Seasonal quality is declining in that market, of course, due to the reversal of seasons. A pack of 3,000 reject light steers moved at 78 pesos, or 11$^{13}/_{16}$c, about ½c off; 3,000 reject cows also sold at 75 pesos or 11⅜c, a decline of ¼c.

COUNTRY HIDES.—The country market has not been overly active, the call being almost entirely for light average hides and heavy stock moving slowly. Untrimmed all-weights are quoted 10½@10¾c, flat, equal to around 11¼c, selected, del'd Chgo.; recent trading has been mostly on a flat basis. Heavy steers and cows quoted around 9½c. Trimmed buff weights usually quoted 11½@11¾c, selected, but tanner buyers report difficulty in finding anything offered under 12c. Trimmed extremes are quoted around 14c and good stock salable at this figure. Bulls quoted 6¾c, flat. Glues around 9c flat. All-weight branded hides quoted around 10c, flat, trimmed.

CALFSKINS.—Packer calfskins showed further strength, with advances of ¼c paid on the heavy end and ½c up paid for lights. One packer sold about 25,000 Apr. calf and another sold Apr. production of about 10,000, all at 28¼c for northern heavies 9½/15 lb., 27c for River point heavies, and 21½c for lights under 9½ lb. A third packer sold 3,800 Apr. and fourth packer 10,000 Feb. to Apr. light calf, all at 21½c. Two packers sold 9,500 Milwaukee all-weight packer calf at 23c, a cent over last previous sale. Later, one packer sold 4,000 Apr. River point heavy skins at 27¼c.

City calfskins were also stronger. One collector sold a car Chgo. city 8/10 lb. calf at 19c, or ½c over last week's bid, and it was indicated that two more cars sold quietly at 19c also; bids of 23½c are in the market for 10/15 lb., with light offerings at 24c. Outside cities, 8/15 lb., quoted 20@20½c nom.; straight countries around 16c flat. Car of Chgo. city light calf and deacons sold at $1.35.

KIPSKINS.—The sharp advance in packer kipskins featured the market this week, final sales being at 2@2¼c over last week's quotations, with overweights and brands 3@3¼c over last actual sales. One packer sold 2,500 April production at 21¾c for northern natives, 20¾c for northern overweights, and 18¾c for brands. Another packer removed Apr. kips from list quietly, presumably booked to tanning account. Later a third packer sold 3,000 April production at 22¼c for northern natives and 21¼c for northern overweights, southerns a cent less, and 19c for brands. Fourth packer sold 3,800 Mar. to Apr. northern natives at 22¼c.

Trading is awaited to establish the market on city kipskins; there are no bids in the face of a lack of offerings, some quoting around 20c nom. On this basis, outside cities are quoted around 19½c, straight countries around 16c.

Action is awaited on packer Apr. regular slunks; Mar. skins last sold at $1.05.

HORSEHIDES.—While not all buyers are willing to pay the prices asked, there appears to be sufficient trading in horsehides to hold prices fully steady. Good city renderers, with manes and tails, quoted $5.25@5.35, selected, f.o.b. nearby sections; ordinary trimmed renderers range $5.10@5.20, del'd Chgo.; mixed city and country lots $4.60@4.75, Chgo.

SHEEPSKINS.—There is some variation in quotations on packer shearlings, mainly the first two grades. One house reports the sale of two cars this week in advance, at $1.35 for No. 1's, 90c for No. 2's and 40c for No. 3's; another packer quoted No. 1's and No. 2's around 10@15c less. However, there seems to be general agreement that No. 3's, which comprise the bulk of the present production, are salable at 37½@40c. Buyers of small packer shearlings quote one-half to two-thirds of packer values. Pickled skins, old stock, have sold again at $5.75 per doz.; buyers holding off on new lambs and no trading reported as yet. Packer Apr. wool pelts quoted $2.37½@2.40 per cwt. live weight basis; outside small packer pelts $2.10@2.15 per cwt. live basis. Spring lambs quoted around $1.30 per cwt. live weight basis for pulling, although sales have been reported at $1.20@1.30 each for fur purposes.

New York

PACKER HIDES.—There has been no trading reported in the New York market since the sale couple weeks back of a car each, Apr. butt branded steers at 13c and Colorados at 12½c. Market quoted nominally on this basis, with native steers at 13c. Most of April production still intact.

CALFSKINS.—Only a light trade was reported in the eastern calfskin market, hardly sufficient to define values in view of the strength in the western market; this is especially true of kipskins, due partly to very light production. Collectors' 4-5's last sold at $1.35, with higher talked; collectors sold 5,000 of the 5-7's this week at $1.55 and $1.60;

the 7-9's are quoted around $2.60@2.65, and 9-12's around $3.85@3.90 nom. A packer sold 1,000 of the 7-9's at $3.00, which was an advance of 10c over last week's price.

Personalities and Events

(Continued from page 19.)

company since 1924, having worked in the Ottumwa office from 1924 to 1926, after which he served in the Memphis, Mobile, Philadelphia and New York branches.

B. T. Wien, northwestern representative of the Transparent Package Co., and Mrs. Wien, have returned from their honeymoon spent in Florida.

T. E. Willging, beef department, and **H. C. Snyder**, general sales manager, John Morrell & Company, Sioux Falls, So. Dakota, are spending some time in the East and during the past week visited the company's plants and branches in the New York area with **E. L. Cleary**, Eastern district manager.

The spring meeting of the Tanners' Council of America will be held on May 9 and 10 at the Greenbrier, White Sulphur Springs, W. Va. On the opening night, **Harold Connett**, chairman of the board, will hold a reception for all members, their friends and visitors. With the exception of group meetings, all sessions will be open, it is announced.

J. F. Philliber, president, Punxsutawney Beef & Provision Co., Punxsutawney, Pa. stopped over in Chicago this week on his way to Kansas City. He was accompanied by **S. R. Fagley** of his organization.

H. M. Reber, assistant manager of Armour and Company's branch at Binghamton, N. Y., has been discharged from the hospital after being confined with a fractured leg and dislocated ankle.

Abraham Krasner, well-known Terre Haute, Ind. wholesaler and retailer, died recently in that city after a short illness. Mr. Krasner had been in business in Terre Haute for more than 20 years and was 47 years old at the time of his death.

Two principal speakers on the Feeders' Day program at the Oklahoma A. & M. College, April 20, were **Charles E. Snyder**, editorial director of the *Corn Belt Farm Dailies*, Chicago, and **R. C. Pollock**, general manager of the National Live Stock and Meat Board.

MEAT AND LARD EXPORTS

Exports through port of New York during week ended April 25, totaled 1,591,585 lbs. of lard and 25,000 lbs. of bacon.

LARD AND GREASE EXPORTS

Exports of lard from New York City, week of April 20, 1940, totaled 15,750 lbs.; greases, 257,600 lbs.; bacon, 25,000 lbs. and oleo oil, 75 tierces.

WEEK'S CLOSING MARKETS

FRIDAY'S CLOSING

Provisions

Hog products reacted further on liquidation, packer selling and less aggressive support, owing to weakness in grains but there was evidence of spreaders buying lard against sale of cotton oil. Domestic cash trade was fair; export interest slow.

Cottonseed Oil

Cotton oil was weaker on May liquidation, outside selling, professional pressure, dullness in cash trade and easier lard and grains. Refiners were buying May on scale down; otherwise support was limited. Crude was dull; Southeast and Valley, 6c n; Texas, 5¾@5⅞c. Better cash trade is expected next week.

Quotations on bleachable cottonseed oil at close of market on Friday were: May, 6.76@6.77; July 6.85; Sept. 6.92@6.93; Oct., 6.94; Dec. 6.96@6.97; 286 lots; closing steady.

Tallow

New York extra tallow was quoted at 5c lb. It is estimated that about 750,000 lbs. of extra tallow sold at 5c Thursday.

Stearine

Stearine was quoted 6½c lb.

Friday's Lard Markets

New York, April 26, 1940.—Prices are for export. Lard, prime western, 6.80@6.90c, middle western, 6.70@6.80c; city, 6⅜@6½c; refined continent, 6⅞@7c; South American, 7@7¼c; Brazil kegs, 7⅜@7½c; shortening, 9¼c.

TALLOW FUTURE TRADING

Mon., Apr. 22.—Close: May and July 5.00.

Tues., Apr. 23.—Close: May, June and July 5.00 bid; no sales.

Wed., Apr. 24.—Close: May and June 4.90 b; no sales.

Thurs., Apr. 25.—Close: All options, 4.90 b; no sales.

Friday, Apr. 26.—Close: All options, 4.80 b; no sales.

FSCC BUYS D. S. PORK

Federal Surplus Commodities Corp. announced this week that it had purchased 1,180,000 lbs. of salt pork, including 850,000 lbs. of D. S. fat backs and 330,000 lbs. of D. S. bellies. This brought total D. S. pork purchases under the program to 5,032,000 lbs.

CHICAGO HIDE FUTURES

Futures market inactive, June option not open yet.

CHICAGO HIDE QUOTATIONS

Quotations on hides at Chicago for the week ended Apr. 26, 1940, with comparisons:

PACKER HIDES.

	Week ended Apr. 26.	Prev. week.	Cor. week, 1939.
Hvy. nat. strs.	@13	12¾@13¼	@ 9¼
Hvy. Tex. strs.	@13ax	12¾@13	@ 9½n
Hvy. butt brnd'd strs.	@13ax	12¾@13	@ 9½n
Hvy. Col. strs.	@12½ax	12¼@12½	9 @ 9¼
Ex-light Tex. strs.	@13¾	12¾@13	9 @ 9¼
Brnd'd cows	13 @13¼	12¾@13	9 @ 9¼
Hvy. nat. cows	@12¾	12¾@13	@ 9n
Lt. nat. cows	13½@13¾	13½@14	@ 9½
Nat. bulls	@ 9½	9¼@10	@ 7
Brnd'd bulls	@ 8½	8¼@ 9	@ 6
Calfskins	21½@28½	21 @28b	16¼@18
Kips, nat.	@22¼	@20	@12½
Kips, ov-wt	@21¼	@19n	@11½
Kips, brnd'd	@19	@17n	@10
Slunks, reg	1.05@1.10n	@1.05	@80n
Slunks, hrls	55 @60	55 @60	@35

Light native, butt branded and Colorado steers 1c per lb. less than heavies.

CITY AND OUTSIDE SMALL PACKERS.

Nat. all-wts	12 @12½	12¼@12¾	8½@ 9
Branded	11¼@12	11¾@12¼	8 @ 8½
Nat. bulls	8¼@ 8½	8¼@ 8½	@ 6
Brnd'd bulls	7¾@ 8	7¾@ 8	@ 5
Calfskins	19 @24	18½@23½b	13 @15
Kips	@20n	18 @18½n	@11n
Slunks, reg	@95n	@95n	70 @75n
Slunks, hrls	@50n	@50n	@30n

COUNTRY HIDES.

Hvy. steers	@ 9½	@ 9½	6 @ 6½
Hvy. cows	@ 9½	@ 9¼	6 @ 6½
Buffs	11½@12	11½@11¾	7¾@ 8
Extremes	@14	@14	9¾@10
Bulls	@ 6¾	@ 7	5 @ 5¼
Calfskins	@16	15½@16	@10n
Kipskins	@16	@15	9 @ 9½
Horsehides	4.60@5.35	4.60@5.30	2.50@3.40

SHEEPSKINS.

Pkr. shearlgs	1.30@1.35	1.30@1.35	@75
Dry pelts	14 @15n	14 @15n	12 @12½

NEW YORK HIDE FUTURES

Saturday, Apr. 20.—June 13.99; Sept. 14.25@14.26; Dec. 14.48 n; Mar. 14.71 n; 67 lots; 1@6 higher.

Monday, Apr. 22.—Close: June 13.76 b; Sept. 14.01; Dec. 14.26@14.29; Mar. 14.51 n; 96 lots; 20@24 lower.

Tuesday, Apr. 23. — Close: June 13.92@13.95; Sept. 14.15; Dec. 14.41; Mar. 14.66 n; 136 lots; 14@16 higher.

Wednesday, Apr. 24.—Close: June 13.91@13.95; Sept. 14.19@14.20; Dec. 14.44; Mar. 14.67 n; 39 lots; 1 lower to 4 higher.

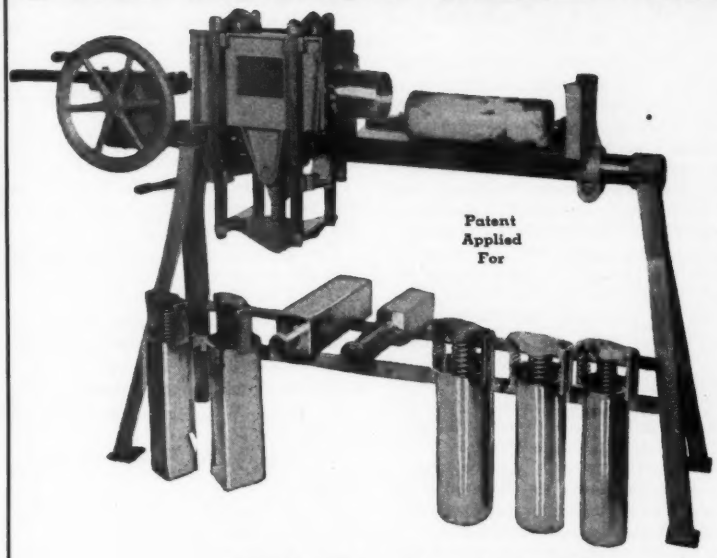
Thursday, Apr. 25. — Close: June 13.93@13.98; Sept. 14.20@14.21; Dec. 14.45 n; Mar. 14.66 n; 121 lots; 2 higher to 1 lower.

Friday, April 26.—Close: June 13.74 @13.75; Sept. 14.01; Dec. 14.27 b; Mar. (1941) 14.53 b; 145 sales; 13@19 higher.

ARGENTINE BEEF EXPORTS

Cable reports of Argentine exports of beef this week up to April 25, 1940: To the United Kingdom, 145,422 quarters; to the Continent, 33,944 quarters. A week ago, to the United Kingdom, 166,156 quarters; to the Continent, 262.

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First Steps in Cutting Steam and Power Costs

By GEORGE B. MULLOY

HOW much engineering should the meat plant owner know? The answer might be: "Enough to enable him to supervise his power plant intelligently but not enough to spoil a good packinghouse operating man. When anyone in the industry is known as "a good packinghouse man" it is understood that he is well versed in the economics of the industry and in the operation of slaughtering, processing and sales departments. In other words, he "knows his stuff."



G. B. MULLOY

Successful operation of a packinghouse requires continuous and efficient operation of the power plant. Any interruption in this department interferes with production.

Plant owners and superintendents check each day's operations in killing, processing and sales departments very carefully. They know the number of animals killed, pounds of product processed, yields and tonnage sold. These men also know steam and power are required to operate the plant, and they look to the operating engineer to furnish these in sufficient quantities without interruption. These executives are not so familiar as they should be, however, with the cost at which these services are produced and supplied.

The reason may be that the plant owner, whose money is being spent in the engine and boiler rooms, assumes that it is the engineer's job to produce steam and power at low cost, and that the theory and practice governing results are too deep for him to understand. He notes power department costs are about the same each month, whether the kill is light or heavy, and he is inclined to believe the weather or some other obscure reasons are responsible for such cost variations as may occur.

At any rate, he believes engineering is not in his line. He feels the whole subject is confusing and annoying and he is disinclined to look for trouble by attempting to understand it. However, there are some facts he must have if he is to give the power plant the supervision it deserves. These facts are:

1.—Number of tons of coal burned each week.

2.—Fuel cost per 1,000 lbs. of commercial steam produced.

3.—Number of pounds of commercial steam generated per pound of fuel burned.

4.—Number of tons of refrigeration produced and the power cost per ton.

5.—Number of gallons of water used and the steam or power cost of pumping per 1,000 gallons.

6.—Amount of compressed air used and the steam or power cost of production per 1,000 cu. ft.

7.—Amount of electrical energy used and its cost per kw.h., whether produced or purchased.

8.—Ammonia consumption and cost.

9.—Boiler and engine room supplies and their cost.

10.—Cost of boiler and engine room labor.

11.—Boiler and engine room repairs and their cost.

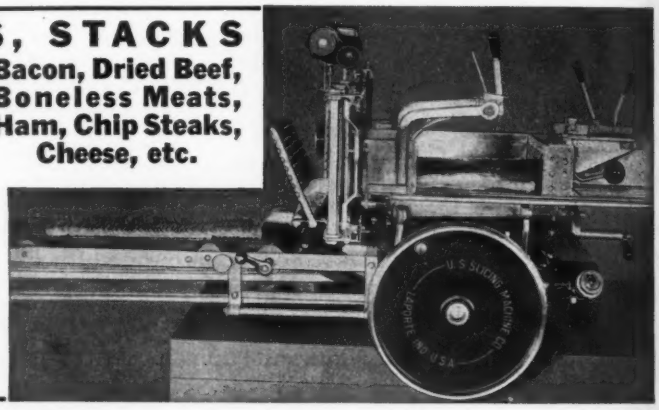
All of this information may be summarized in a simple weekly report. The data will enable the plant owner to make weekly comparisons of power plant results and will be of inestimable value in aiding him in keeping steam and power costs in line. If costs are

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unreasonably high, this weekly report will enable him to determine the fact, will point out where they are excessive and will suggest how to reduce them.

Cutting costs in the packinghouse power plant does not necessarily mean a large investment must be made for new equipment. Important savings can often be made by improving operations so as to utilize more heat units in each ton of coal fired and by reducing waste of steam and power in the processing departments.

Power Plant Costs

In small and medium size packinghouse power plants, expenses will range approximately as follows:

POWER PLANT EXPENSES

	Per cent of total cost
Fuel	90.00
Labor	4.25
Repairs	3.20
Water	1.70
Supplies	.85
Total	100.00

Fuel is the largest item in power plant expense. It is particularly important, therefore, to make a careful, regular analysis of the manner in which it is used. Any reduction in fuel cost is likely to be important. Furthermore, fuel savings can often be made at a minimum of expense merely by improving operations.

The first step in reducing fuel costs is to determine the cost of fuel for generating 1,000 lbs. of commercial steam. The packer can easily figure this cost if he knows the price per ton for coal delivered at his plant, how many pounds of water are evaporated per pound of coal burned under the boilers, average feedwater temperature and boiler pressure.

Savings in Fuel

When a pound of water is evaporated, a pound of steam results. If the packer has a boiler feed water meter installed, he may determine, for example, that 6.95 lbs. of water are evaporated for every pound of coal burned, that average temperature of the feed water is 180 degs. F. and that boiler pressure is 140 lbs.

From any table of factors of evaporation it will be found that the factor of evaporation is 1.0782 under these conditions. If this factor is multiplied by the 6.95 lbs. of water evaporated per pound of coal burned, the result is 7.5 pounds—the amount of steam produced per pound of coal burned.

If cost of coal delivered at the plant is $3.25 per ton, then the fuel cost per 1,000 lbs. of commercial steam is $\frac{3.25}{2\times7.5}$ or 21.67c.

Boiler and Furnace Efficiency

Overall boiler and furnace efficiency should be known by the meat plant executive responsible for operation of the power plant. Why is it important to have this information? What determines efficiency? What should efficiency be and how does it affect the fuel cost of 1,000 lbs. of commercial steam?

It is simple to calculate overall boiler and furnace efficiency when the number of pounds of commercial steam per pound of coal fired, and the number of heat units in each pound of coal, are known. The number of heat units per pound of coal may be obtained from the coal dealer, by analysis in the packer's own laboratory or by sending a sample of the coal to the Institute of American Meat Packers.

If coal being burned analyzes 11,500 B.t.u. and 7.5 lbs. of water are evaporated in the boiler per pound of coal fired, the overall efficiency of the boiler and furnace is $\frac{7.5\times970.2}{11,500}$ or 63.27 per cent.

In this formula 970.2 is the total heat in 1 lb. of steam at 140 lbs. pressure minus the heat in 1 lb. of feed water at a temperature of 180 degs. F. This efficiency percentage means that 63.27 per cent of the total heat in one pound of coal is used to produce steam at 140 lbs. pressure.

Value of Clean Boilers

The packer will want to know whether the efficiency of his boilers is good, bad or indifferent. The answer depends on the character of the boiler room under consideration, the means available for controlling efficiency and the manner in which the boilers are operated.

The first rule for the packer who wants high boiler efficiency is to keep the boiler heating surfaces clean and the boiler settings tight. Clean heating surfaces are reasonably free from soot and dust on the fire side and from scale and sludge on the water side. Clean heating surfaces absorb heat more readily than fouled ones; therefore, the temperature of the gases entering the stack is lower.

Heat which goes up the stack is lost forever for generating steam. Therefore, it is essential in achieving high efficiency to keep the temperature of stack gases as low as is consistent with the load the boiler is carrying and the steam pressure being maintained. The packer will appreciate that the temperature of the stack gases will be higher than the temperature of the steam being generated when natural draft is employed and no heat recovering apparatus, such as air preheaters and economizers, are installed.

Temperature and Pressure

Temperature of the steam in the boiler corresponds to the steam pressure carried. Under normal conditions, temperature indicates pressure and vice versa. The temperature of steam at any pressure may be determined by reference to any steam table.

Steam at zero pounds gauge, for example, has a temperature of 212 degs. F.; at 50 lbs. gauge, a temperature of 298 degs.; at 100 lbs. gauge, a temperature of 338 degs. Temperature increases with pressure. If the temperature of the stack gases were lower than the temperature of the steam in the



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boiler, the gases passing over the heating surfaces of the last pass of the boiler would condense the steam in the tubes.

Temperature of gases entering the stack, when heating surfaces are clean and boiler operation is normal, will be 100 to 150 degs. F. higher than the temperature of the steam. If 100 lbs. pressure is being carried, with the boiler being operated at 100 to 150 per cent of normal rating and the correct air-fuel ratio being maintained, temperature of the stack gases will range between 438 and 488 degs. F. It will be correspondingly higher if the steam pressure is increased.

Losses by High Temperatures

There is a considerable loss when proper flue gas temperatures are exceeded. The packer who burns midwestern and western bituminous coals can figure a loss of 1 per cent of the fuel for each 25 to 30 degs. excess stack temperature. A boiler operated at from normal to 150 per cent of rating, carrying a pressure of 100 lbs. and having stack temperatures of 575 to 650 degs. F., is wasting from 4 to 6 per cent of the fuel burned; under these circumstances there is an excess of 137 to 162 degs. F. in the temperature of the flue gases.

Conditions other than dirty heating surfaces which cause high flue gas temperatures include broken or misplaced boiler baffles, which permit the gases to short circuit; incomplete combustion of the fuel; stratification of gases due to poor furnace design; excess air through the fuel bed, use of coal poorly suited to the conditions and lack of sufficient furnace volume to completely burn volatile matter distilled from the fuel.

The boiler inspector's report will inform the packer whether or not heating surfaces and baffles are in good operating condition. Boilers are usually inspected two or three times each year. The inspection reports contain recommendations which are valuable to the packer. He should insist on seeing them and should follow the recommendations.

Function of the Furnace

The function of the furnace is to generate heat which is absorbed by the water in the boiler. Furnace design and the method of stoking are of major importance in producing low cost steam. The furnace may be likened to the carburetor of an automobile. In both, air must be mixed with the fuel to support combustion. If a carburetor is not adjusted properly, gasoline consumption will be high. If the air-coal mixture is not maintained at the proper point the furnace will burn more coal than is necessary.

It is difficult to proportion properly air supplied to the furnace when coal is hand fired. Firing is intermittent, the coal burns unevenly and it is difficult to maintain the proper thickness of fuel on the grates. A common cause of low efficiency lies in thin spots or holes in the fuel bed; these permit free flow of air into the furnace unless the draft is regulated in some way. However, even the installation of a damper regulator will seldom result in the best efficiency with hand firing.

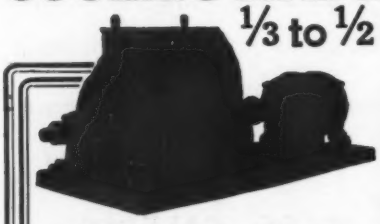
CO_2 Determination

Regardless of the kind of fuel employed—coal, oil or gas—the correct amount of air must be used to reduce fuel loss to a minimum. Amount of air required varies continuously with the quantity of fuel being consumed. The best check on the efficiency with which fuel is being burned is a CO_2 meter. This instrument automatically determines the percentage of carbon dioxide in flue gases passing up the stack, which, in turn, is a good indication of the accuracy with which air is being proportioned to the fuel consumed.

The use of a recording CO_2 meter is suggested. This makes a continuous record of the performance of the furnace, insofar as efficiency of combustion is concerned, and is a reliable operating guide for boiler room employes. When burning a fair grade of fuel in a furnace with adequate volume an average of 10 to 12 per cent of CO_2 should be obtained. A considerable loss in fuel is indicated if the CO_2 percentage drops below 10 per cent. A low CO_2 percentage is responsible for the greatest loss which occurs in the meat plant boiler room—a loss which may be as much as 10 to 25 per cent of the total preventable loss.

Leakage of air through boiler settings reduces boiler efficiency by cooling down

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heating surfaces; every effort should be made to keep boiler settings tight. Settings may be tested for leaks by slowly closing the main damper while the furnace is operating. As the damper approaches the closed position, and a slight pressure is built up in the furnace, smoke will be forced through any crevices and cracks in the brickwork. After leaks are located they should be repaired immediately.

This test is worthwhile from another angle; it will determine the operating condition of the damper. The packer who makes the test may also gain some idea as to whether the damper is being used as it should be, or whether it is customary to operate the boiler with the damper wide open at all times regardless of load conditions. A damper is installed for a purpose and should be used continuously to regulate the draft and the proportion of air delivered to the fuel on the grates.

Ash Analysis

As much as 2 to 3 per cent of the coal fired may be lost through the grates. It is desirable, therefore, to inspect the ash pile frequently, and to make an occasional chemical analysis of the ashes to determine the amount of fuel which is being paid for and which is not being used to produce steam.

Whatever means are employed to obtain higher boiler efficiency—use of better grades of fuel, installation of metering and indicating instruments, employment of better operating methods or modernization of equipment—the plant owner may easily determine the effect on the coal pile.

Figuring the Saving

If, for example, the overall operating efficiency of the boiler and furnace was 50 per cent before efficient methods were adopted, and was then increased to 70 per cent, the saving in coal will be $\frac{70-50}{70}$ or 28.57 per cent. In a plant burning only 10 tons of coal per day, or approximately 3,500 tons per year, at a cost of $3.25 per ton delivered at the plant, increasing the overall boiler efficiency from 50 to 70 per cent would result in a saving of $3,200 per year. Such a saving can be made in many meat packing plants, primarily through improvement in operating methods, and with only a small investment.

In this article I have attempted to arouse packers' interest in their power plants by pointing out where large losses are likely to occur and also how simply and easily boiler efficiency can be improved, waste and loss eliminated and large sums of money saved.

Too many packers, I fear, are assuming in their attitude toward their power plants that "where ignorance is bliss it is folly to be wise." As a matter of fact, to be ignorant of power plant operations is folly, when to be wise would not only mean bliss but lower steam costs and the elimination of waste.

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FLASHES ON SUPPLIERS

DIAMOND CRYSTAL SALT CO., INC.—**F. W. Moore**, president, Diamond Crystal Salt Co., announces the appointment of **Dr. J. A. Dunn** as director of technical service for the company. Dr. Dunn has been a food chemist since 1921, holding positions with Wallace & Tiernan Co., Pillsbury Flour Mills Co., Proctor & Gamble Co. and Lever Bros. His new work will cover flavor and quality control, shelf-life of commodities, processing, production and, in general, increase of sales through improved consumer appeal. He will have access to the resources of General Foods' research organization as well as Diamond Crystal's own research and engineering departments.



DR. J. A. DUNN

KOLD-HOLD CO.—**R. H. Glezen**, sales manager, announces appointment of **George I. Boone** to handle East coast sales, with the assistance of **Louis Block**, the company's Eastern sales and service representative for many years. Mr. Glezen also announces appointment of **Frank Haag** as sales and service representative for metropolitan Chicago, northern Indiana, northern Illinois and eastern Wisconsin, and that of **H. E. Rieckelman** as representative for western New York, western Pennsylvania and northeastern Ohio. Factors in the expansion of the company's sales and service facilities are reported to be new locker plant equipment and hold-over units which are used for truck refrigeration.

YORK ICE MACHINERY CORP.—York Ice Machinery Corp. has added 600 men to its factory force during the past six months in order to handle the company's increasing orders for air conditioning and refrigeration equipment, according to **Stewart E. Lauer**, president. "In the wood-working department alone," he reports, "we have increased the personnel 50 per cent to keep up with current orders for our Roller-Seal cold storage door."

CHAIN BELT CO.—**Thomas E. Cocker** has been appointed manager of the Detroit district office of Chain Belt Co., succeeding **G. A. Gunther.** The former has been with the company since 1921 and has served as district manager at Cleveland and Buffalo.

ANCHOR-HOCKING GLASS CORP.—Anchor-Hocking Glass Corp. announces the appointment of **Louis D. Halsell** as manager of the company's Denver, Colo., office. Mr. Halsell will represent the container and tableware divisions of Anchor Hocking and also its subsidiary, the Anchor Cap & Closure Corp.

ARMOUR TRUCKS' ICE UNITS

An article describing certain truck operating practices of Armour and Company, in which it was stated that a particular type of refrigerating equipment was used in all of this company's vehicles, was published some time ago in THE NATIONAL PROVISIONER.

Sylvan S. Cohen, manager of the Air Induction Ice Bunker Corp., calls attention to the fact that "all," as used in this article, was incorrect. "For the past five years," Mr. Cohen says, "we have sold a considerable number of Air Induction air conditioners to Armour and Company. The company's fleet working out of Jersey City, N. J., numbering about 60 vehicles, uses our units exclusively."

ARGENTINE MEAT EXPORTS UP

Argentina exported 1,612,011 quarters of frozen beef during the three months ended March 31, as compared with 229,254 frozen and 1,142,333 chilled quarters in the corresponding period of 1939. For the same period, shipments of lamb carcasses numbered 1,365,138, an increase of approximately 75 per cent over the 798,692 exported in the first quarter of last year.

Value of Argentina's meat exports in January and February reached 74,000,000 pesos, as compared with 50,000,000 pesos in the like 1939 period. As usual, exports are going largely to Europe.



VALDURA ASPHALT *Aluminum* PAINT

Valdura can handle the toughest paint jobs in the packing industry —at lower cost. Check these money-saving features:

- **25% more coverage—service**
- **Resists brine, acids, fumes**
- **One coat covers any surface**
- **Retains its brilliant sheen**

For lasting sanitation—rust and corrosion prevention—use Valdura Asphalt Aluminum Paint.

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FREE: Send for sample, literature and name of local dealer.

THE CHOICE OF LEADING PACKERS

VALDURA PAINTS VARNISHES ENAMELS

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NO
PITH, NO FIBRE!

Cream of Spice Seasonings dissolve completely because all pith, fibre, and foreign matter is removed. Only the finest ingredients that definitely contribute to the high quality standard of STANGE Products are used in this flavorful and uniform seasoning. Start using C. O. S. at once. Write for generous free samples!

WM. J. STANGE CO.
2536-40 W. MONROE ST., CHICAGO
Western Branches: 923 E. 3rd St., Los Angeles; 1250 Sansome St., San Francisco. In Canada: J. H. Stafford Industries, Ltd., 24 Hayter St., Toronto, Ont.



BIGGER SALES MORE PROFIT ON SUMMER SAUSAGE

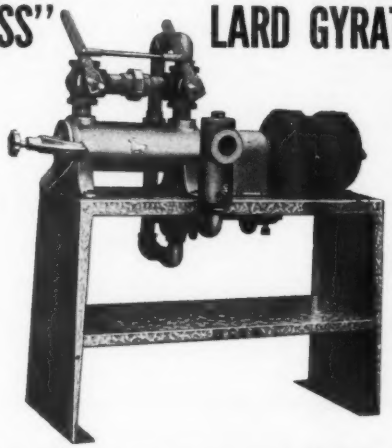
ZIPP Casings for summer sausage and other hard sausages actually cost *less* than ordinary casings. They can be attractively printed in *white* which stands out against the natural sausage color. Increase your profit per pound and insure repeat orders for *your* brand with *Zipp* Casings.

MADE OF VEGETABLE PARCHMENT — Z-I-P-P CASINGS — IDENTIFICATION, INCORPORATED

WRITE FOR *free* BOOK

IDENTIFICATION, INC.
James H. Wells, President
4541 N. Ravenswood Ave. Chicago, Illinois

"BOSS" LARD GYRATOR



This machine is invaluable for the making of high grade lard. It whips the lard into a smooth, fluffy mass, free from air pockets. Color and texture of the finished product are materially improved and the tendency toward rancidity is avoided.

"BOSS" assures
Best Of Satisfactory Service

The Cincinnati Butchers' Supply Co.

General Office: 2145 Central Parkway, Cincinnati, Ohio
Factory: 1972-2008 Central Ave., Cincinnati, Ohio
824 Exchange Ave., U. S. Yards, Chicago, Ill.

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BLISS Boxes, assembled on Bliss Box Stitchers and sealed with Bliss Top Stitchers, offer you these three outstanding advantages:

1 - SAFE and ECONOMICAL

Light-weight, yet extremely strong, these solid fibre Bliss Boxes materially reduce carrying costs, deliver your product in prime condition, *help increase sales!*

2 - EASY to ASSEMBLE

Bliss Boxes are easily and quickly assembled on Bliss Box Stitchers. Delivered flat, they require a minimum amount of space for storage.

3 - SECURELY SEALED

Bliss Power Lift Top Stitcher permits immediate transfer of Bliss Boxes from conveyor line or trucks *without lifting!* Top stitching is speedy and secure.

BLISS STITCHERS are equipped with the Bliss Heavy-Duty Stitcher Head . . . the fastest, most durable stitchers built! Ask for complete particulars.

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330 W. 42nd St., New York

Bliss, Latham and Boston Wire Stitching Machinery for All Types of Fibre Containers

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PHILADELPHIA 5th and Chestnut Sts.
BOSTON 185 Summer St.
CINCINNATI Roy C. Kern 3441 St. Johns Place
SAN FRANCISCO LOS ANGELES SEATTLE Harry W. Brintnall Co.
DALLAS J. F. Carter 5241 Bonita Ave.

LIVESTOCK MARKETS *Weekly Review*

FUTURE 1940 MARKETINGS

Slaughter supplies of livestock are expected to continue larger than a year earlier during the summer and fall, according to a report by the U. S. Bureau of Agricultural Economics. Effects of larger supplies upon prices will be partly offset by a stronger domestic demand for meats. Despite German occupation of Denmark, the export outlet for pork and lard in the next several months is not expected to be much larger.

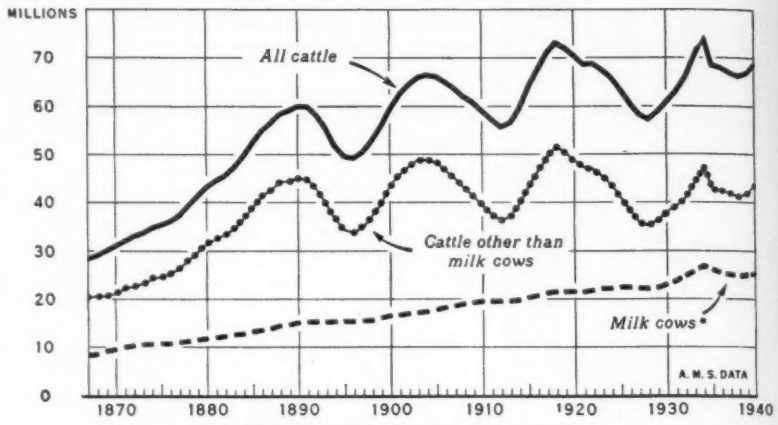
Marketings of hogs probably will increase seasonally during the next two months, as the movement of fall pigs gets under way in large volume. Since last November, hog prices have been very low in relation to corn prices. This is likely to cause the spring and fall pig crops this year to be smaller than those of last year. A decrease in the 1940 pig crop will mean smaller hog marketings in 1940–41 than in 1939–40.

Inspected slaughter in the first half of the 1939–40 hog marketing year (October–March) totaled 26,800,000 head, which is about 23 per cent more than in the corresponding period of the 1938–39 season and 7 per cent more than the pre-drought 1929–30 to 1933–34 average for the period. This increase in slaughter over a year earlier is somewhat larger than the 20 per cent increase in the 1939 spring pig crop over that of 1938. During the past three months, the number and proportion of packing sows in total marketings have been somewhat larger than a year earlier, but the average weights of hogs marketed have been somewhat lighter.

CHICAGO PACKER PURCHASES

Purchases of livestock at Chicago by the principal packers for the first three days this week were 21,991 cattle, 2,850 calves, 21,641 hogs and 13,502 sheep.

ALL CATTLE: NUMBER ON FARMS JANUARY 1, UNITED STATES, 1867-1940



*COWS AND HEIFERS 2 YEARS OLD AND OVER KEPT FOR MILK
DATA FOR 1940 ARE PRELIMINARY

Cattle numbers increased moderately during the past two years, following the sharp reduction from 1934 to 1938. Cattle population will probably increase still more in the next few years if feed supply and range are about normal. (U. S. Bureau of Agricultural Economics chart.)

LIVESTOCK AT 66 MARKETS

March receipts, local kill, shipments, as reported by U. S. Agricultural Marketing Service:

	Receipts	Local slaughter	Shipments
CATTLE			
March, 1940	917,866	561,378	344,843
March, 1939	1,040,651	625,420	405,436
March, 5-yr. av.	1,072,820	656,740	401,794
CALVES			
March, 1940	441,466	263,986	171,232
March, 1939	500,887	326,436	173,352
March 5-yr. av.	525,159	357,195	165,978
HOGS			
March, 1940	2,710,474	1,964,082	749,366
March, 1939	2,205,073	1,654,278	546,631
March 5-yr. av.	1,998,117	1,416,473	577,301
SHEEP AND LAMBS			
March, 1940	1,440,234	823,799	619,946
March, 1939	1,765,571	1,045,800	720,169
March 5-yr. av.	1,716,984	1,021,354	692,049

MARCH TRUCK RECEIPTS

Driven-in receipts of livestock at public stockyards during March:

	March 1940 No.	March 1939 No.
Cattle	639,991	692,978
Calves	289,502	314,082
Hogs	1,812,748	1,526,714
Sheep	300,899	381,811

CANADIAN INSPECTED KILL

Canadian inspected kill in March, 1940:

	Mar. 1940	Mar., 1939
Cattle	62,790	56,865
Calves	49,615	61,863
Hogs	379,408	299,722
Sheep	36,282	39,129

THE VITAL LINK
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ECONOMICAL BUYING
KENNETT-MURRAY
Livestock Buying Service
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Dayton, Ohio
Omaha, Neb.
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Sioux City, Iowa
Cincinnati, Ohio
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Indianapolis, Ind.
Nashville, Tenn.
Montgomery, Ala.

Order Buyer of Live Stock
L. H. McMURRAY
Indianapolis, Indiana

FRANK R. JACKLE
Broker
Offerings Wanted of:
Tankage, Blood, Bones, Cracklings, Hoofs
405 Lexington Ave. New York City

CORN BELT DIRECT TRADING

(Reported by U. S. Department of Agriculture, Agricultural Marketing Service.)

Des Moines, Ia., April 25, 1940.—At 16 concentration points and 10 packing plants in Iowa and Minnesota hogs were rather slow and unevenly 15@35c lower, mostly 20@30c off.

Good to choice, 180-240-lb., $5.65@6.15; 200-240-lb., $5.80@$6.05 at plants, and $5.75@5.80, few, $6.00 at yards; 240-270-lb., $5.65@6.00; 270-300-lb., $5.45@5.90; 300-330-lb., $5.35@5.85; 330-360-lb., $5.15@5.75; 160-180-lb., $5.30@5.90, sows 330-lb. down, $4.95@5.35, largely $5.00@5.25; 330-400-lb., $4.80@5.25; 400-500-lb., $4.65@5.05.

Receipts of hogs at Corn Belt markets for week which ended with April 25, 1940:

	This week	Last week
Friday, Apr. 19	19,000	34,900
Saturday, Apr. 20	21,400	34,700
Monday, Apr. 22	33,100	34,400
Tuesday, Apr. 23	13,400	14,700
Wednesday, Apr. 24	13,500	16,600
Thursday, Apr. 25	26,000	21,500

WEEKLY INSPECTED KILL

Number of animals processed in 27 selected centers for week ended April 19, with comparisons:

	Cattle	Calves	Hogs	Sheep
New York Area[1]	11,763	18,570	57,057	62,016
Phila. & Balt.	3,879	1,316	31,724	1,632
Ohio-Indiana Group[2]	9,009	4,649	55,781	7,623
Chicago	28,242	8,143	88,679	52,267
St. Louis Area[3]	8,970	6,844	63,608	7,391
Kansas City	8,629	4,345	26,753	21,651
Southwest Group[4]	9,919	3,472	26,841	49,249
Omaha	14,317	1,060	23,895	24,318
Sioux City	8,107	191	20,281	7,238
St. Paul-Wisc. Group[5]	21,733	32,480	92,302	7,349
Interior Iowa & So. Minn.[6]	17,129	6,493	131,268	33,131
Total	141,697	87,563	618,189	273,865
Total prev. week	128,542	75,452	690,625	269,768
Total last year	122,289	76,012	528,670	243,717

[1]Includes New York City, Newark, and Jersey City. [2]Includes Cincinnati and Cleveland, Ohio, and Indianapolis, Ind. [3]Includes National Stockyards and East St. Louis, Ill., and St. Louis, Mo. [4]Includes So. St. Joseph, Wichita, Oklahoma City, and Ft. Worth. [5]Includes St. Paul, Minn., Madison, and Milwaukee, Wisconsin. [6]Includes Albert Lea and Austin, Minn., and Cedar Rapids, Des Moines, Ft. Dodge, Mason City, Marshalltown, Ottumwa, Storm Lake, and Waterloo, Iowa.

Packing plants included in above tabulation slaughtered in March and April 1939 approximately 75 per cent of the cattle, 72 per cent of the calves, 73 per cent of the hogs, and 83 per cent of the sheep and lambs slaughtered under Federal inspection in that two months' period.

RECEIPTS AT CHIEF CENTERS

Receipts for week ended April 20:

At 20 markets:	Cattle	Hogs	Sheep
Week ended April 20	166,000	346,000	260,000
Previous week	164,000	440,000	268,000
1939	163,000	339,000	304,000
1938	173,000	284,000	304,000
1937	199,000	340,000	343,000

At 11 markets:	Hogs
Week ended April 20	294,000
Previous week	378,000
1939	273,000
1938	224,000
1937	270,000
1936	258,000

At 7 markets:	Cattle	Hogs	Sheep
Week ended April 20	120,000	232,000	171,000
Previous week	117,000	317,000	174,000
1939	111,000	216,000	182,000
1938	119,000	178,000	172,000
1937	130,000	212,000	186,000
1936	144,000	218,000	160,000

LIVESTOCK PRICES AT LEADING MARKETS

Livestock prices at five leading Western markets, Thursday, April 25, 1940, as reported by U. S. Department of Agriculture, Agricultural Marketing Service.

Hogs (soft & oily not quoted).	CHICAGO	NAT. STK. YDS.	OMAHA	KANS. CITY	ST. PAUL
BARROWS AND GILTS:					
Good-choice:					
120-140 lbs.	$ 5.25@ 5.65	$ 5.35@ 5.80	.....	$ 5.10@ 5.60	$ 5.10@ 5.45
140-160 lbs.	5.85@ 6.20	5.80@ 6.20	$ 5.50@ 5.90	5.35@ 5.90	5.25@ 5.85
160-180 lbs.	6.05@ 6.25	6.25@ 6.40	5.75@ 6.10	5.75@ 6.10	5.75@ 6.05
180-200 lbs.	6.15@ 6.35	6.25@ 6.40	5.85@ 6.10	6.00@ 6.15	6.00@ 6.05
200-220 lbs.	6.20@ 6.40	6.25@ 6.40	6.00@ 6.10	6.00@ 6.15	6.00@ 6.05
220-240 lbs.	6.20@ 6.40	6.20@ 6.35	5.85@ 6.10	6.00@ 6.15	5.90@ 6.00
240-270 lbs.	6.15@ 6.35	6.00@ 6.25	5.80@ 5.90	5.90@ 6.10	5.75@ 5.95
270-300 lbs.	6.10@ 6.25	5.90@ 6.05	5.65@ 5.85	5.80@ 6.00	5.70@ 5.85
300-330 lbs.	6.00@ 6.15	5.85@ 6.00	5.60@ 5.75	5.70@ 5.90	5.60@ 5.75
330-360 lbs.	5.95@ 6.00	5.80@ 5.90	5.50@ 5.65	5.50@ 5.80	5.50@ 5.65
Medium:					
160-220 lbs.	5.25@ 6.15	5.75@ 6.25	5.25@ 5.85	5.25@ 6.00	5.25@ 5.90
SOWS:					
Good and choice:					
270-300 lbs.	5.65@ 5.80	5.40@ 5.50	5.35@ 5.40	5.35@ 5.50	5.25 only
300-330 lbs.	5.55@ 5.75	5.35@ 5.45	5.25@ 5.35	5.35@ 5.50	5.20@ 5.25
330-360 lbs.	5.45@ 5.65	5.25@ 5.40	5.15@ 5.35	5.25@ 5.40	5.15@ 5.25
Good:					
360-400 lbs.	5.40@ 5.60	5.20@ 5.30	5.10@ 5.35	5.15@ 5.35	5.10@ 5.20
400-450 lbs.	5.25@ 5.50	5.15@ 5.25	5.00@ 5.25	5.10@ 5.25	5.00@ 5.15
450-500 lbs.	5.10@ 5.35	5.00@ 5.20	5.00@ 5.10	5.00@ 5.15	4.90@ 5.10
Medium:					
250-500 lbs.	4.85@ 5.40	4.85@ 5.40	4.75@ 5.00	4.75@ 5.35	4.75@ 5.00
PIGS (Slaughter):					
Med. & good, 90-120 lbs.	4.00@ 5.50	4.75@ 5.40	.....	.....	4.75@ 5.25
Slaughter Cattle, Vealers and Calves:					
STEERS, choice:					
750- 900 lbs.	11.00@12.25	10.50@11.50	10.50@11.75	10.50@11.75	10.25@11.00
900-1100 lbs.	11.00@12.50	10.50@11.50	10.75@12.00	10.50@12.00	10.25@11.25
1100-1300 lbs.	11.25@12.50	10.75@11.75	10.75@12.00	10.75@12.00	10.25@11.25
1300-1500 lbs.	11.25@12.50	10.75@11.75	10.75@12.00	10.75@12.00	10.25@11.25
STEERS, good:					
750- 900 lbs.	9.50@10.75	9.50@10.50	9.50@10.75	9.50@10.50	8.75@10.25
900-1100 lbs.	9.50@11.00	9.50@10.50	9.75@10.75	9.50@10.75	9.00@10.25
1100-1300 lbs.	9.50@11.25	9.50@10.75	9.75@10.75	9.50@10.75	9.00@10.25
1300-1500 lbs.	9.50@11.25	9.50@10.75	9.75@10.75	9.50@10.75	9.00@10.25
STEERS, medium:					
750-1100 lbs.	8.50@ 9.50	8.50@ 9.50	8.75@ 9.75	8.75@ 9.50	7.75@ 9.00
1100-1300 lbs.	8.50@ 9.50	8.50@ 9.50	8.75@ 9.75	8.75@ 9.50	7.75@ 9.00
STEERS, common:					
750-1100 lbs.	7.50@ 8.50	7.50@ 8.50	7.25@ 8.75	7.75@ 8.75	6.75@ 7.75
STEERS, HEIFERS AND MIXED:					
Choice, 500-750 lbs	10.50@11.75	9.75@10.75	10.00@11.00	10.50@11.25	9.75@10.75
Good, 500-750 lbs	9.50@10.50	8.75@ 9.75	9.00@10.00	9.25@10.50	8.75@ 9.75
HEIFERS:					
Choice, 750-900 lbs	10.00@11.00	9.75@10.50	9.75@10.50	10.25@11.25	9.50@10.00
Good, 750-900 lbs	9.25@10.00	8.75@ 9.75	8.75@ 9.75	9.25@10.50	8.25@ 9.50
Medium, 500-900 lbs	8.25@ 9.25	8.00@ 8.75	7.75@ 8.75	8.25@ 9.25	7.25@ 8.25
Common, 500-900 lbs	7.25@ 8.25	7.25@ 8.00	6.75@ 7.75	7.25@ 8.25	6.25@ 7.25
COWS, all weights:					
Good	7.25@ 8.00	7.00@ 7.75	7.00@ 7.75	7.00@ 7.75	6.75@ 7.50
Medium	6.50@ 7.25	6.50@ 7.00	6.50@ 7.00	6.25@ 7.00	6.25@ 6.75
Cutter and common	5.25@ 6.50	5.50@ 6.50	5.25@ 6.50	5.00@ 6.25	4.75@ 6.25
Canner	4.25@ 5.25	4.00@ 5.50	4.50@ 5.25	4.00@ 5.00	4.25@ 4.75
BULLS (Ylgs. Excl.), all weights:					
Beef. good	6.75@ 7.15	6.75@ 7.25	6.75@ 7.25	6.90@ 7.25	6.50@ 7.00
Sausage, good	6.85@ 7.25	6.50@ 7.00	6.75@ 7.10	6.75@ 7.00	6.50@ 7.00
Sausage, medium	6.50@ 6.85	6.00@ 6.50	6.25@ 6.75	6.00@ 6.75	6.00@ 6.75
Sausage, cutter and common.	6.00@ 6.50	5.25@ 6.00	5.75@ 6.25	5.25@ 6.00	5.25@ 6.00
VEALERS, all weights:					
Good and choice	9.50@11.50	9.50@10.75	9.00@10.50	8.50@10.50	8.50@11.00
Common and medium	6.50@ 9.50	7.25@ 9.50	6.50@ 9.00	6.50@ 8.50	6.50@ 8.50
Cull	5.00@ 6.50	5.00@ 7.25	5.00@ 6.50	5.50@ 6.50	4.50@ 6.50
CALVES, 400 lbs. down:					
Good and choice	8.00@ 9.00	7.50@ 9.00	7.00@ 8.50	7.75@ 9.50	7.50@ 9.50
Common and medium	6.00@ 8.00	6.00@ 7.50	6.00@ 7.00	6.25@ 7.75	6.00@ 7.50
Cull	5.00@ 6.00	5.00@ 6.00	5.00@ 6.00	5.25@ 6.25	4.50@ 6.00
Slaughter Lambs and Sheep:[1]					
SPRING LAMBS:					
Choice (closely sorted)	.....	.....	.....	.....	.....
*Good and choice	.....	10.50@11.25	.....	10.25@10.50	.....
*Medium and good	.....	9.00@10.25	.....	9.00@10.00	.....
Common	.....	.....	.....	.....	.....
LAMBS (wooled):					
Choice (closely sorted)	.....	.....	.....	.....	.....
*Good and choice	10.10@10.35	10.00@10.50	9.75@10.00	9.50@ 9.85	9.85@10.10
*Medium and good	8.75@ 9.75	9.00@ 9.75	8.85@ 9.75	8.50@ 9.25	9.00@ 9.60
Common	7.75@ 8.50	7.50@ 8.75	7.50@ 8.85	7.25@ 8.25	.....
LAMBS (shorn):					
Choice (closely sorted)	.....	.....	.....	.....	.....
*Good and choice	.....	.....	8.75@ 9.00	8.50@ 9.00	.....
*Medium and good	.....	.....	7.75@ 8.75	7.50@ 8.25	.....
Common	.....	.....	.....	.....	.....
EWES:					
Good and choice	4.25@ 5.50	4.50@ 5.50	4.25@ 5.50	4.50@ 5.50	.....
Common and medium	3.25@ 4.25	3.00@ 4.50	3.25@ 4.25	2.75@ 4.50	4.50@ 5.50

[1] Quotations based on animals of current seasonal market weights and wool growth. Shorn animals with less than 60 days' wool growth quoted as shorn. * Quotations on slaughter lambs of good and choice and of medium and good grades, as combined, represent lots averaging within the top half of the good and the top half of the medium grades, respectively.

FAT ON HOG CASINGS

Is too much fat going to the casing room on your hog bungs? Read chapter 2 of "PORK PACKING," The National Provisioner's pork plant book.

PACIFIC COAST LIVESTOCK

Receipts for five days ended Apr. 19:

	Cattle	Calves	Hogs	Sheep
Los Angeles	4,519	1,036	2,526	2,440
San Francisco	975	140	1,400	475
Portland	1,765	200	3,460	2,070

PACKERS' PURCHASES

Purchases of livestock by packers at principal centers for the week ending Saturday, April 20, 1940, as reported to The National Provisioner:

CHICAGO

Armour and Company, 3,213 hogs; Swift & Company, 2,919 hogs; Wilson & Co., 5,588 hogs; Western Packing Co., Inc., 2,030 hogs; Agar Packing Co., 4,411 hogs; shippers, 6,730 hogs; others, 23,249 hogs.

Total: 37,900 cattle; 4,628 calves; 48,140 hogs; 46,099 sheep.

KANSAS CITY

	Cattle	Calves	Hogs	Sheep
Armour and Company	1,937	390	1,743	4,782
Cudahy Pkg. Co.	1,090	366	835	5,380
Swift & Company	1,180	359	1,158	4,943
Wilson & Co.	1,089	334	806	3,655
Ind. Pkg. Co.	....	....	275	....
Kornblum Pkg. Co.	1,043	....	....	....
Others	1,538	333	2,378	7,657
Total	7,827	1,782	7,195	26,417

OMAHA

	Cattle and Calves	Hogs	Sheep
Armour and Company	4,892	4,952	5,822
Cudahy Pkg. Co.	3,284	3,266	7,130
Swift & Company	3,403	2,623	5,536
Wilson & Co.	1,359	2,232	1,664
Others	....	7,328	....

Cattle and calves: Eagle Pkg. Co., 11; Greater Omaha Pkg. Co., 87; Geo. Hoffmann, 53; Lewis Pkg. Co., 770; Nebraska Beef Co., 694; Omaha Pkg. Co., 216; John Roth, 150; South Omaha Pkg. Co., 113; Lincoln Pkg. Co., 321.

Total: 15,353 cattle and calves; 20,401 hogs; 20,152 sheep.

EAST ST. LOUIS

	Cattle	Calves	Hogs	Sheep
Armour and Company	2,196	1,781	4,595	2,022
Swift & Company	2,173	1,696	4,564	2,414
Hunter Pkg. Co.	1,287	112	6,005	....
Heil Pkg. Co.	....	....	2,656	....
Krey Pkg. Co.	....	....	6,903	....
Laclede Pkg. Co.	....	....	3,168	....
Sieloff Pkg. Co.	....	....	1,454	....
Shippers	3,475	2,595	17,627	600
Others	3,220	178	2,876	650
Total	12,351	6,362	49,848	5,686

Not including 1,030 cattle, 3,011 calves, 30,140 hogs, and 1,345 sheep bought direct.

ST. JOSEPH

	Cattle	Calves	Hogs	Sheep
Swift & Company	1,284	319	4,932	14,017
Armour and Company	1,429	360	4,287	8,234
Others	1,128	126	839	2,258
Total	3,841	805	10,058	24,509

Not including 303 sheep bought direct.

SIOUX CITY

	Cattle	Calves	Hogs	Sheep
Cudahy Pkg. Co.	2,957	55	5,415	1,902
Armour and Company	2,878	46	5,626	1,872
Swift & Company	2,598	46	3,366	1,922
Shippers	3,661	19	5,037	366
Others	229	14	53	1
Total	12,323	179	19,497	6,063

OKLAHOMA CITY

	Cattle	Calves	Hogs	Sheep
Armour and Company	1,012	528	2,184	1,066
Wilson & Co.	838	574	2,244	1,047
Others	214	13	1,619	7
Total	2,064	1,115	6,047	2,120

Not including 59 cattle, 1,083 hogs and 147 sheep bought direct.

DENVER

	Cattle	Calves	Hogs	Sheep
Armour and Company	1,204	105	1,921	3,735
Swift & Company	619	137	2,119	9,378
Cudahy Pkg. Co.	775	63	1,622	2,421
Others	2,287	227	1,580	9,396
Total	4,885	532	7,242	24,930

FT. WORTH

	Cattle	Calves	Hogs	Sheep
Armour and Company	1,410	277	3,532	10,579
Swift & Company	1,081	383	1,299	10,427
Blue Bonnet Pkg. Co.	135	22	1,066	65
City Pkg. Co.	3	1	614	....
Rosenthal Pkg. Co.	31	8	76	5
Total	2,660	691	6,587	21,076

ST. PAUL

	Cattle	Calves	Hogs	Sheep
Armour and Company	3,020	2,642	13,608	1,691
Swift & Company	5,006	4,253	17,527	2,572
United Pkg. Co.	2,526	228	....	....
Rifkin Pkg. Co.	691	44	....	....
Cudahy Pkg. Co.	886	1,905	....	....
Others	1,721	553	....	....
Total	13,850	9,627	31,135	4,263

WICHITA

	Cattle	Calves	Hogs	Sheep
Cudahy Pkg. Co.	661	585	1,911	3,021
Dold Pkg. Co.	308	102	960	....
Wichita D. B. Co.	19	....	....	....
Dunn-Ostertag	60	....	224	....
Fred W. Dold	99	....	531	2
Sunflower Pkg. Co.	33	....	287	....
Pioneer Cattle Co.	19	....	....	....
Interstate Pkg. Co.	224	....	....	....
Keefe Pkg. Co.	127	....	....	....
Total	1,550	687	3,913	3,023

Not including 123 cattle and 2,010 hogs bought direct.

INDIANAPOLIS

	Cattle	Calves	Hogs	Sheep
Kingan & Co.	1,915	634	16,288	378
Armour and Company	1,014	185	2,126	....
Hilgemeier Bros.	10	....	1,201	....
Stumpf Bros.	....	....	143	....
Meier Pkg. Co.	65	4	243	....
Stark & Wetzel	109	41	600	....
Wabnitz and Deters.	57	74	377	44
Maass Hartman Co.	33	28	....	....
Shippers	2,385	2,371	19,144	3,435
Others	585	164	270	26
Total	6,173	3,501	40,392	3,883

CINCINNATI

	Cattle	Calves	Hogs	Sheep
S. W. Gall's Sons.	....	17	....	292
E. Kahn's Sons Co.	663	772	8,354	217
Lohrey Packing Co.	4	....	277	....
H. H. Meyer Pkg. Co.	12	....	3,999	....
J. Schlachter's Sons.	130	210	....	17
J. & F. Schroth P. Co.	19	....	2,916	....
J. F. Stegner Co.	365	296	....	8
Shippers	160	20	2,443	....
Others	1,462	751	804	151
Total	2,815	2,066	18,793	685

Not including 1,351 cattle, 91 calves, 4,136 hogs and 1,141 sheep bought direct.

RECAPITULATION† CATTLE

	Week ended Apr. 20	Prev. week	Cor. week, 1939
Chicago	37,900	36,368	28,813
Kansas City	7,827	9,163	10,930
Omaha*	15,353	15,146	13,614
East St. Louis	12,351	4,308	9,934
St. Joseph	3,841	12,719	3,485
Sioux City	12,323	10,928	8,695
Oklahoma City	2,064	2,111	3,198
Wichita	1,550	1,461	2,098
Denver	4,885	4,606	4,019
St. Paul	13,850	12,257	11,335
Milwaukee	4,146	4,002	4,169
Indianapolis	6,173	7,053	5,467
Cincinnati	2,815	2,693	2,135
Ft. Worth	2,660	3,611	3,824
Total	127,738	126,426	111,766

HOGS

Chicago	48,140	76,628	42,295
Kansas City	7,195	11,358	7,672
Omaha	20,401	26,553	21,383
East St. Louis	49,848	14,027	46,018
St. Joseph	10,058	55,873	8,991
Sioux City	19,497	26,654	18,342
Oklahoma City	6,047	5,784	7,608
Wichita	3,913	4,595	4,281
Denver	7,242	7,265	4,416
St. Paul	31,135	46,001	23,916
Milwaukee	8,368	11,134	8,663
Indianapolis	40,392	47,522	39,633
Cincinnati	18,793	23,682	19,487
Ft. Worth	6,587	5,526	7,503
Total	277,616	362,602	260,208

SHEEP

Chicago	46,099	52,184	54,789
Kansas City	26,417	27,804	34,427
Omaha	20,152	19,401	15,160
East St. Louis	5,686	27,247	5,235
St. Joseph	24,509	4,639	25,157
Sioux City	6,063	8,114	6,743
Oklahoma City	2,120	1,206	3,147
Wichita	3,023	4,120	3,260
Denver	24,930	28,531	45,167
St. Paul	4,263	5,857	2,219
Milwaukee	1,308	1,023	1,075
Indianapolis	3,883	3,631	3,109
Cincinnati	685	1,748	418
Ft. Worth	21,076	14,068	11,555
Total	190,209	199,573	211,461

*Cattle and calves.

†Not including directs.

CANADIAN EXPORTS TO U. S.

Exports to United States in March, 1940:

	Mar., 1940	Mar., 1939
Cattle, no.	9,881	3,946
Hogs, no.	4	1
Sheep, no.	43	64
Beef, lbs.	24,700	180,800
Bacon and ham, lbs.	38,000	62,300
Pork, lbs.	134,600	236,800
Canned Meat, lbs.	450	100

CHICAGO LIVESTOCK

Statistics of livestock at the Chicago Union Stock Yards for current and comparative periods.

†RECEIPTS

	Cattle	Calves	Hogs	Sheep
Mon., April 15	16,617	1,139	18,114	14,102
Tues., April 16	6,201	2,200	18,236	8,916
Wed., April 17	9,842	1,488	13,398	8,682
Thurs., April 18	5,407	1,229	9,489	15,044
Fri., April 19	1,903	373	9,656	8,404
Sat., April 20	100	.....	4,500	4,500
*Total this week	40,071	6,430	73,386	59,650
Prev. week	35,485	5,137	99,784	60,180
Year ago	29,934	7,674	70,356	60,419
Two years ago	34,205	8,265	64,022	47,216

SHIPMENTS

	Cattle	Calves	Hogs	Sheep
Mon., April 15	3,012	31	2,004	4,229
Tues., April 16	2,004	79	706	1,022
Wed., April 17	3,048	21	486	931
Thurs., April 18	1,114	42	931	2,905
Fri., April 19	437	26	1,943	3,501
Sat., April 20	100	.....	100	500
Total this week	9,715	199	6,170	13,189
Previous week	10,399	114	7,955	14,107
Year ago	8,897	196	3,541	18,433
Two years ago	8,610	288	4,459	11,653

*Including 445 cattle, 946 calves, 23,683 hogs and 15,489 sheep direct to packers from other points.

†All receipts include directs.

APRIL AND YEAR RECEIPTS

Receipts thus far this month and year to date with comparisons:

	April 1940	April 1939	Year 1940	Year 1939
Cattle	106,213	86,141	553,261	509,126
Calves	16,850	23,442	75,612	105,577
Hogs	259,255	183,961	1,791,668	1,269,473
Sheep	174,838	169,865	799,496	975,167

WEEKLY AVERAGE PRICE OF LIVESTOCK

	Cattle	Hogs	Sheep	Lambs
Week ended April 20	$9.55	$5.50	$5.00	$10.30
Previous week	9.30	5.15	4.90	10.45
1939	10.15	6.95	5.50	10.30
1938	8.60	8.40	5.10	8.20
1937	10.90	10.05	5.75	12.90
1936	8.35	10.65	5.60	11.10
1935	11.25	9.00	4.00	8.00
Av. 1935-1939	$9.85	$9.00	$5.20	$10.10

SUPPLIES FOR CHICAGO PACKERS

	Cattle	Hogs	Sheep
Week ended April 20	30,256	67,216	46,461
Previous week	24,944	90,489	45,643
1939	31,105	66,900	42,459
1938	25,490	59,430	35,207
1937	31,361	71,474	34,815
1936	27,347	62,435	46,894

HOG RECEIPTS, WEIGHTS AND PRICES

	No. Rec'd	Av. Wt. lbs.	Prices Top	Prices Av.
*Week ended April 20	73,400	252	$6.00	$5.50
Previous week	99,915	251	5.50	5.15
1939	70,356	253	7.35	6.95
1938	64,022	247	9.00	8.40
1937	78,630	237	10.50	10.05
1936	68,244	250	11.00	10.65
1935	57,782	242	9.25	9.00
Av. 1935-1939	67,800	245	$9.40	$9.00

*Receipts and average weight for week ending April 20, 1940, estimated.

CHICAGO HOG SLAUGHTERS

Hog slaughters at Chicago under federal inspection for week ending Friday, April 20:

Week ending April 20	88,679
Previous week	97,325
Year ago	76,651
Two years ago	62,913

CHICAGO HOG PURCHASES

Supplies of hogs purchased by Chicago packers and shippers week ended Thursday, April 25:

	Week ended Apr. 25	Prev. week
Packers' purchases	37,628	41,410
Shippers' purchases	9,361	6,730
Total	46,989	48,140

FEEDER STOCK SHIPMENTS

Livestock inspected at markets for shipment to country (feeder stock only) in March, 1940:

	Cattle and calves No.	Hogs No.	Sheep No.
March, 1940	152,153	27,397	62,309
March, 1939	167,842	26,941	83,606
4-year av. 1936-39	149,714	27,630	60,401

SLAUGHTER REPORTS

Special reports to THE NATIONAL PROVISIONER show the number of livestock slaughtered at 16 centers for the week ended April 20, 1940.

CATTLE

	Week Ended Apr. 20	Prev. Week	Cor. week, 1939
Chicago†	29,374	27,346	20,694
Kansas City*	9,609	10,734	12,673
Omaha*	15,564	14,142	12,725
East St. Louis	8,876	9,791	7,846
St. Joseph	4,141	4,767	3,674
Sioux City	8,872	7,804	6,162
Wichita*	2,360	2,144	2,748
Fort Worth	3,351	4,290	5,945
Philadelphia	2,241	2,077	1,909
Indianapolis	1,920	1,838	1,341
New York & Jersey City.	11,763	8,457	9,915
Oklahoma City*	3,238	2,931	4,557
Cincinnati	3,592	3,581	3,009
Denver	4,320	3,982	4,102
St. Paul	11,243	12,257	9,705
Milwaukee	4,146	3,838	3,952
Total	124,610	119,979	110,957

*Cattle and calves.

HOGS

Chicago	88,679	97,325	76,651
Kansas City	26,753	34,567	27,970
Omaha	23,895	29,477	24,930
East St. Louis[1]	63,608	71,651	63,389
St. Joseph	9,318	13,484	9,459
Sioux City	20,281	23,743	15,739
Wichita	3,913	7,367	6,663
Fort Worth	6,587	5,526	7,503
Philadelphia	18,394	18,789	17,526
Indianapolis	19,967	21,517	17,687
New York & Jersey City.	57,057	60,494	49,128
Oklahoma City	7,130	6,653	8,858
Cincinnati	16,834	20,222	17,602
Denver	7,230	7,212	4,397
St. Paul	31,135	46,001	32,027
Milwaukee	8,368	11,078	8,606
Total	409,149	475,106	388,135

[1]Includes National Stock Yards, East St. Louis, Ill., and St. Louis, Mo.

SHEEP

Chicago†	33,190	38,822	36,374
Kansas City	26,417	27,804	34,427
Omaha	23,290	24,043	18,602
East St. Louis	5,086	4,639	5,235
St. Joseph	22,554	17,881	19,320
Sioux City	6,455	8,151	6,279
Wichita	3,023	4,120	3,266
Fort Worth	21,076	14,068	11,555
Philadelphia	2,873	2,606	2,006
Indianapolis	2,270	1,810	1,902
New York & Jersey City.	61,961	59,660	61,512
Oklahoma City	2,267	1,206	3,147
Cincinnati	1,830	1,153	1,417
Denver	6,499	6,565	7,009
St. Paul	4,263	5,857	2,219
Milwaukee	1,303	1,023	1,067
Total	224,357	219,408	215,331

†Not including directs.

MARCH LIVESTOCK NUMBERS

Livestock at stockyards during March, as reported by the Agricultural Marketing Service, showing receipts, shipments (including feeder and stocker) and slaughter under federal inspection, with comparisons:

	March		First 3 mos.	
	1940	1939	1940	1939
RECEIPTS				
Cattle	917,866	1,040,651	2,893,083	3,066,163
Calves	441,466	500,887	1,278,138	1,408,785
Hogs	2,710,474	2,025,073	9,404,424	6,874,502
Sheep	1,440,234	1,765,571	4,593,042	5,058,457
TOTAL SHIPMENTS				
Cattle	344,843	405,436	1,024,954	1,181,525
Calves	171,232	173,352	471,762	506,766
Hogs	749,366	546,631	2,598,065	1,867,065
Sheep	619,946	720,169	1,832,610	1,991,595
STOCKER AND FEEDER SHIPMENTS				
Cattle	163,949	195,309	445,267	561,671
Calves	50,580	57,454	132,524	163,439
Hogs	49,412	45,099	139,531	124,035
Sheep	88,610	110,417	291,846	304,307
FEDERALLY INSPECTED SLAUGHTER				
Cattle	721,163	777,801	2,263,629	2,191,828
Calves	439,979	478,416	1,234,295	1,278,033
Hogs	3,981,165	3,229,120	13,614,170	10,162,700
Sheep	1,265,590	1,473,069	4,176,324	4,289,744

Watch Classified page for bargains.

MEAT SUPPLIES AT EASTERN MARKETS

(Reported by the U. S. Department of Agriculture, Agricultural Marketing Service)

WESTERN DRESSED MEATS

		NEW YORK	PHILA.	BOSTON
STEERS, carcass	Week ending April 20, 1940	9,135	2,666	2,681
	Week previous	9,831	2,632	2,430
	Same week year ago	9,208	2,406	2,442
COWS, carcass	Week ending April 20, 1940	714	813	2,284
	Week previous	747	1,065	2,321
	Same week year ago	1,274	1,326	2,425
BULLS, carcass	Week ending April 20, 1940	360	471	37
	Week previous	320	472	27
	Same week year ago	356	413	21
VEAL, carcass	Week ending April 20, 1940	12,527	1,275	975
	Week previous	13,759	1,457	1,537
	Same week year ago	13,989	1,777	801
LAMB, carcass	Week ending April 20, 1940	37,812	14,829	17,188
	Week previous	38,923	14,532	17,684
	Same week year ago	36,454	12,327	13,678
MUTTON, carcass	Week ending April 20, 1940	2,092	287	338
	Week previous	2,330	310	895
	Same week year ago	1,622	383	1,202
PORK CUTS, lbs.	Week ending April 20, 1940	2,567,339	428,081	360,595
	Week previous	1,502,443	306,168	387,448
	Same week year ago	2,329,679	411,700	310,953
BEEF CUTS, lbs.	Week ending April 20, 1940	196,970	.....	.....
	Week previous	295,797	.....	.....
	Same week year ago	373,788	.....	.....

LOCAL SLAUGHTERS

CATTLE, head	Week ending April 20, 1940	11,763	2,241	.....
	Week previous	8,457	2,077	.....
	Same week year ago	9,915	1,909	.....
CALVES, head	Week ending April 20, 1940	19,667	2,814	.....
	Week previous	14,382	2,729	.....
	Same week year ago	14,492	2,887	.....
HOGS, head	Week ending April 20, 1940	54,901	18,394	.....
	Week previous	60,494	18,789	.....
	Same week year ago	49,128	17,526	.....
SHEEP, head	Week ending April 20, 1940	61,961	2,873	.....
	Week previous	59,660	2,606	.....
	Same week year ago	61,512	2,006	.....

Country dressed product at New York totaled 5,746 veal, 5 hogs and 417 lambs. Previous week 5,016 veal, no hogs and 733 lambs in addition to that shown above.

NEW YORK LIVESTOCK

April 25, 1940

CATTLE:		
Steers, medium and good	$	9.85n
Cows, medium	6.00@	6.50
Cows, cutter and common	5.25@	5.75
Cows, canner	4.25@	4.75
Bulls, good	7.25@	7.75
Bulls, medium	6.50@	7.00
CALVES:		
Vealers, good and choice	$10.00@	12.50
Vealers, common and medium	7.50@	9.50
Vealers, culls	6.50@	7.00
HOGS:		
Hogs, good and choice, 193-lb	$	6.40
LAMBS:		
Lambs, good, 90-93-lb	$	10.25n

Receipts of salable livestock at Jersey City public market, week of April 20:

	Cattle	Calves	Hogs*	Sheep
Salable receipts	2,663	703	278	230
Total, with directs	7,613	12,239	27,522	34,919
Previous week:				
Salable receipts	1,741	391	411	1
Total, with directs	6,231	9,617	30,616	43,628

*Including hogs at 41st street.

WILSON TAX SUIT REVIEW

The U. S. Supreme Court this week granted Wilson & Co., Chicago, a review of a suit to recover approximately $219,000 in processing taxes paid under the old Agricultural Adjustment Act. The packing company seeks to recover taxes paid on pork products which were exported.

CANADIAN LIVESTOCK PRICES

STEERS

	Week ended Apr. 18	Last week	Same week 1939
Toronto	$ 7.50	$ 7.50	$ 7.50
Montreal	7.90	7.75	7.75
Winnipeg	7.00	7.25	7.25
Calgary	7.50	6.75	7.00
Edmonton	7.00	7.00	7.00
Prince Albert	6.50	6.25	6.00
Moose Jaw	6.50	6.25	6.50
Saskatoon	7.00	6.85	7.25
Regina	6.60	6.50	6.50
Vancouver	7.25	....	7.00

VEAL CALVES

Toronto	$11.50	$11.00	$ 9.50
Montreal	8.00	7.50	7.50
Winnipeg	8.50	8.00	7.50
Calgary	9.50	9.00	7.50
Edmonton	8.50	9.00	7.00
Prince Albert	7.25	7.50	6.50
Moose Jaw	7.50	7.50	7.00
Saskatoon	8.50	9.00	7.50
Regina	8.00	8.50	8.00
Vancouver	....	....	7.50

BACON HOGS

Toronto	$ 9.00	$ 8.75	$ 9.00
Montreal[1]	9.40	9.00	9.50
Winnipeg[1]	8.60	8.60	8.50
Calgary	8.40	8.40	8.10
Edmonton	8.40	8.00	8.25
Prince Albert	8.30	8.05	8.25
Moose Jaw	8.35	8.10	8.35
Saskatoon	8.30	8.30	8.25
Regina	8.35	8.10	8.35
Vancouver	8.25	8.10	....

[1]Montreal and Winnipeg hogs sold on a "F. & W." basis; all others "off trucks."

GOOD LAMBS

Toronto	$10.75	$11.00	$ 9.00
Montreal	10.00	....	8.00
Winnipeg	10.00	9.75	8.25
Calgary	....	9.50	7.25
Edmonton	9.00	....	8.00
Prince Albert	....	....	....
Moose Jaw	9.00	....	7.00
Saskatoon	9.00	....	7.50
Regina	....	....	....
Vancouver	....	....	....

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Reprints of Articles on
Efficiency in the Meat Plant, Operating Costs and Accounting Methods, Published in THE NATIONAL PROVISIONER
may solve the problems that are vexing you. Write today for lists and prices.

Rath's
from the Land O'Corn

BLACK HAWK HAMS AND BACON
PORK - BEEF - VEAL - LAMB
Straight and Mixed Cars of Packing House Products
THE RATH PACKING CO. WATERLOO, IOWA

Vogt's **Liberty Bell Brand**
Hams—Bacon—Sausages—Lard—Scrapple
F. G. VOGT & SONS, INC.—PHILADELPHIA, PA.

Classified ADVERTISEMENTS

Advertisements on this page, 10c per word per insertion, minimum charge $2.00. Position wanted, special rate 7c per word, minimum charge $1.40. Count address or box number as four words.

Position Wanted

Assistant Superintendent

Young man with several years packing experience, desires connection with progressive packer. Interested in processing, manufacturing; would like work as assistant to superintendent. Experienced in plant departmental accounting, yields, and costs of all departments. Can furnish reference as to ability, initiative, character. Married. Age 22. Employed. Replies confidential. Box W-867, THE NATIONAL PROVISIONER, 407 So. Dearborn St., Chicago, Ill.

Sausage Maker

Expert in manufacturing a full line of sausages, including summer sausages and a large variety of meat specialties, baked and cooked loaves, smoked meat, boiled hams, etc. No experimenting, high grade quality as well as lower priced product. Would invest with reliable concern. Box W-863, THE NATIONAL PROVISIONER, 407 So. Dearborn St., Chicago, Ill.

Superintendent

Man with long, practical experience all departments, cattle and hogs, killing, cutting, curing, lard, sausage, canning, etc., familiar with yields, tests and costs; competent, efficient, progressive, now open for position with large or medium size house. Write Box W-877, THE NATIONAL PROVISIONER, 407 So. Dearborn St., Chicago, Ill.

Packing House Man

Married man with 20 years experience in both large and small packing houses as gang foreman, floorsman, etc., desires position. Would locate anywhere. Can furnish good references. Write Box W-870, THE NATIONAL PROVISIONER, 407 So. Dearborn St., Chicago, Ill.

Your Chance

This space gives you a chance to sell your services to the entire Meat Packing Industry. Inquire of THE NATIONAL PROVISIONER, 407 So. Dearborn St., Chicago, Ill.

Equipment Wanted

Packing Equipment Wanted

Wanted for user: 2—50 and 100 lb. Silent Cutters; 2—50 and 100 lb. Stuffers; 2—100 and 200 lb. Mixers; 3—Grinders; Filter Press, Lard Cooling Roll. W-718, THE NATIONAL PROVISIONER, 300 Madison Ave., New York City.

Sausage Equipment

1 Silent cutter, 1 stuffer, stuffing table, grinder, cooking tank, smoke house. Give lowest cost price, size and make of equipment. Address Box 734, Kingston, N. Y.

Men Wanted

Purchasing Agent

Wanted: Man with purchasing experience buying edible offal. State age, experience, salary expected. Write Box W-864, THE NATIONAL PROVISIONER, 407 So. Dearborn St., Chicago, Ill.

Beef Killing Superintendent

Wanted: experienced beef killing superintendent for small plant near Chicago. Write Box W-875, THE NATIONAL PROVISIONER, 407 So. Dearborn St., Chicago, Ill.

The Right Man

Are you looking for a capable man to fill that position you now have open? Your advertising message here will contact men who can offer you years of specialized service and experience. Write THE NATIONAL PROVISIONER, 407 So. Dearborn St., Chicago, Ill.

Salesmen

Salesmen calling on sausagemakers and meat packers can make additional money through handling approved product of merit. Many territories open. Liberal commission. Write Box W-874, THE NATIONAL PROVISIONER, 300 Madison Ave., New York, N. Y.

Skinner and Salesman

Experienced rendering plant skinner wanted and also experienced feed salesman who has sold feed manufactured by rendering company. References required. Write Northern Feed Company, Box 265, Bismarck, N. Dakota.

Locate the Man

Your advertisement in this space, although costing only three dollars, may locate the man you want for that special job. Whether plant superintendent, sausage maker or working foreman, your advertisement will bring the right man. Write THE NATIONAL PROVISIONER, 407 So. Dearborn St., Chicago, Ill.

Tank House Man

Wanted: experienced tank house man able to supervise help and turn out good product with new dry rendering outfit and Expeller press. State age and references. Write Box W-876, THE NATIONAL PROVISIONER, 407 So. Dearborn St., Chicago, Ill.

Equipment for Sale

Rendering Equipment Offerings

5—9′ x 19′ Revolving Digesters or Percolators.
1000 Feet Drag or Scraper Conveyor.
10—Bartlett & Snow Dryers.
25—Dopp Kettles, all sizes.
10—Hammer Mills, Crushers, Grinders, Pulverisers.
Power Plant Equipment.

Sausage and Meat Equipment

5—Ice Breakers and Crushers.
2—Brecht 200 lb. Stuffers, without tubes
2—Grinders, No. 156 and No. 52.
2—Meat Mixers, 35 gal. and 1000-lb.
1—Brecht 18" Filter Press.
1—Hand Operated Fat Cutter.

Ask for "Consolidated News" listing our large stock. Send us your inquiries—we desire to serve you. What have you for sale? We buy from a single item to a complete plant.

CONSOLIDATED PRODUCTS CO., INC.
14-19 Park Row, New York City, N. Y.

New York's Largest Stock

Guaranteed rebuilt equipment.

Meat Choppers, kettles and tanks of copper, Monel, aluminum, in all sizes.

Hammermills, boilers and miscellaneous processing and factory equipment.

Send for complete food machinery catalog.

FIRST MACHINERY CORPORATION
827 East Ninth St.,
New York, N. Y.

The Bunn Tying Machine

is used very generally by packers for tying sausage boxes, bacon squares, picnics, butts, etc. Ties 20-30 packages per minute. Saves twine. Write for our 10-day free trial offer. B. H. Bunn Co., 7609 Vincennes Ave., Chicago, Ill.

Hog Killing Equipment

Complete set of large hog killing equipment. Cost $16,000. Like new. Will sacrifice at $3,000 or will separate.

CHAS. ABRAMS
1422 S. 5th St. Sag. 5176
Philadelphia, Penna.

For Quick Results

Is a piece of extra machinery or equipment taking up valuable space in your plant? If so, an advertisement placed in this space will bring you results quickly and economically. For information write THE NATIONAL PROVISIONER, 407 So. Dearborn St., Chicago, Ill.

THE CUDAHY PACKING CO.
PRODUCERS, IMPORTERS AND EXPORTERS OF
Sausage Casings
221 NORTH LA SALLE STREET CHICAGO, U. S. A.

Wilmington Provision Company
TOWER BRAND MEATS
Slaughterers of Cattle, Hogs, Lambs and Calves
U. S. GOVERNMENT INSPECTION
WILMINGTON DELAWARE

F. C. ROGERS CO.
NINTH AND NOBLE STREETS
PHILADELPHIA
BROKER
PACKINGHOUSE
PRODUCTS
HARRY K. LAX, *General Manager*
Member of New York Produce Exchange and Philadelphia Commercial Exchange

HORMEL
GOOD FOOD
Main Office and Packing Plant
Austin, Minnesota

BICZYJA
(Pronounced BE-CHI-YA)
— AND —
PRONOUNCED
The finest Polish-Style Ham on the market today, by hundreds of satisfied Tobin customers!



THE TOBIN PACKING CO., INC.
FORT DODGE, IOWA

THE CASING HOUSE
BERTH. LEVI & CO., INC.
ESTABLISHED 1882
NEW YORK CHICAGO LONDON
BUENOS AIRES AUSTRALIA WELLINGTON

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The firms listed here are in partnership with you. The products and equipment they manufacture and the services they render are designed to help you do your work more efficiently, more economically and to help you make better products which you can merchandise more profitably. Their advertisements offer opportunities to you which you should not overlook.

guarantee against the possibility of a change or omission in this index

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Hams - Bacon
Dried Beef

HYGRADE'S
Original West Virginia Cured Ham
Ready to Serve

HYGRADE'S
Frankfurters in Natural Casings

HYGRADE'S
Beef - Veal
Lamb - Pork

QUALITY HYGRADE DOMINATES

CONSULT US BEFORE YOU BUY OR SELL

Domestic and Foreign Connections Invited!

HYGRADE FOOD PRODUCTS CORP.
30 Church Street, New York, N. Y.

HUNTER PACKING COMPANY
East St. Louis, Illinois
STRAIGHT AND MIXED CARS OF BEEF AND PROVISIONS

NEW YORK OFFICE
106 Gansevoort St.



Representatives:
William G. Joyce
Boston, Mass.

F. C. Rogers Co.
Philadelphia, Pa.

Superior Packing Co.
Price Quality Service

Chicago — A NATION-WIDE SERVICE — SUPERIOR PACKING CO. — St. Paul

DRESSED BEEF
BONELESS BEEF and VEAL
Carlots *Barrel Lots*

All Kinds, All Shapes, All Sizes

yet you get exclusive results with all

ADELMANN Ham Boilers



NIROSTA (Stainless) STEEL BOILER

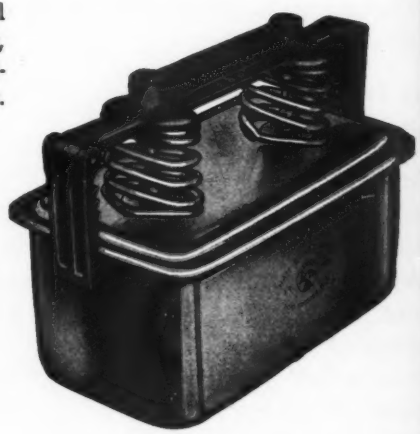
You can select an Adelmann Ham Boiler, in any price range, and be sure that you've got the *best* retainer for your money.

EVERY Adelmann Ham Boiler is equipped with elliptical yielding springs and self-sealing cover. Each has sturdy, easy-to-clean construction. Each is equally efficient. Adelmann Ham Boilers are made in many sizes---several shapes. Specials in Cast Aluminum made to order.

ADELMANN NIROSTA (STAINLESS) STEEL BOILERS are the finest that money can buy. Retainer body and cover each drawn from single sheets of stainless metal — no seams, no welds. Impervious to rust or corrosion. The most economical Boiler you can use.

ADELMANN TINNED STEEL BOILERS have all regular Adelmann features. Drawn from sheet steel, heavily tinned. Will give long, profitable service. The most reasonably priced boiler you can buy.

ADELMANN CAST ALUMINUM BOILERS are of alloy; tested and approved by U. S. Navy to better withstand salt corrosion. Ample strength for any requirement; easy-to-clean design. The standard for ham boiler comparisons.



TINNED STEEL BOILER

Booklet "The Modern Method" shows complete Adelmann line. Many helpful hints. Gives trade-in schedules. *Write for your copy today!*

ADELMANN

"The Kind Your Ham Makers Prefer"

Ham Boiler Corporation

Office and Factory: Port Chester, N. Y. • CHICAGO OFFICE: 332 S. MICHIGAN AVE.

European Representatives: R. W. Bollant & Co., 6 Stanley St., Liverpool & 12 Bow Line, London—Australian and New Zealand Representatives: Gollin & Co., Pty. Ltd., Offices in Principal Cities—Canadian Representatives: C. A. Pemberton & Co., Ltd., 189 Church St., Toronto



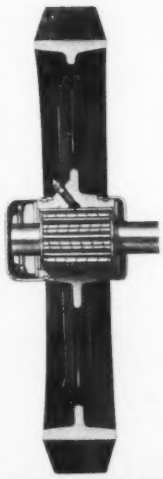
CAST ALUMINUM BOILER

Send for descriptive literature on the complete Adelmann line

TRUCKS

Sanitation, Durability and Balance are perfected features of ANCO Trucks. Silent and Smooth operation are assured by ANCO Rubber Tired, Roller Bearing Running Gear. The heavy-duty special rubber tires on ANCO Trucks are grease resisting. They minimize damage to floors. The small additional charge for this type of running gear has been proven to be "money well spent" in hundreds of Packinghouses.





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3. Ball-Bearing Swivel
4. Bracket Welded to Body
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10. Rubber-Tired Wheel
11. Zerk Grease Fitting
12. Grease Retaining Hub Cap
13. Double-Thick Flange
14. Reinforced Corner

THE ALLBRIGHT-NELL CO.

5323 S. WESTERN BLVD., CHICAGO, ILLINOIS

117 LIBERTY ST.
NEW YORK, N. Y.

832 FIRST NATIONAL BANK BLDG.
HOUSTON, TEXAS





Gelatin

. . . the Food that's Making NEWS!

Cash in on this rapidly growing new source of sales! Your customers have been reading and talking about gelatin. Recent articles in newspapers, medical journals and other magazines have made the public gelatin conscious.

Take your cue for bigger business! Tell your customers that one of the most delightful ways to eat gelatin, "the wonder food product," is in delicious jellied meats . . . easy to serve, because they are prepared by you and are ready to put on the table.

When you use Swift's Superclear, jellied meat dishes are mouth watering just to look at . . . sparkling, crystal-clear! Splendid results are assured, because Superclear is high in test and high in quality. Economical, too . . . Superclear's extra strength achieves minimum jelly costs. For example, only 3.6c per pound gelatin cost for jellied tongues.

Formulas for any jellied meat products sent with trial shipments . . . on request.

ACCEPTED AMERICAN MEDICAL ASSN. Council on Foods

SWIFT'S *Superclear* GELATIN

A SUPERIOR JELLIED MEAT GELATIN

SWIFT & COMPANY GELATIN DIVISION CHICAGO, ILL.